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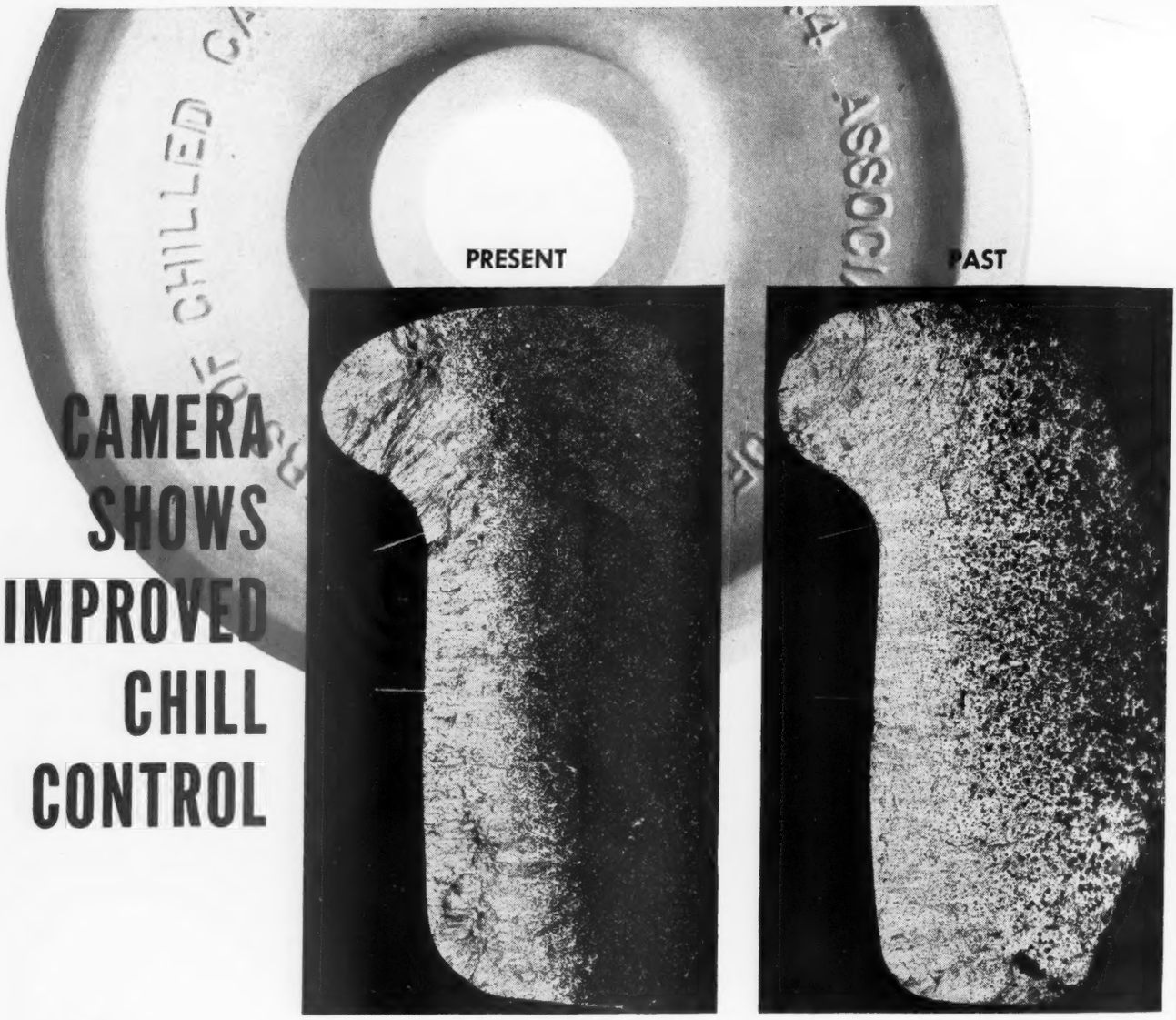

CAMERA SHOWS IMPROVED CHILL CONTROL

THE RECENT SUPPLEMENT TO AAR WHEEL AND AXLE MANUAL includes the wheel photograph shown at the left. It is the modern camera's most recent record of Improved Chill and Mottle Control. In the new supplement, this illustration replaces the one shown at the right which has appeared in the Manual for a number of years.

You can compare the two; *the improvement is apparent.* Notice shock-resisting gray iron backing in both flange and rim portions of wheel treads now being produced. This affords greater protection as compared with treads produced when older practices were used.

These advances have been brought about after long study and cooperation on the part of the AMCCW Research Department and the individual members of the Association. They result from metallurgical progress combined with wheel design improvements, and offer greater strength in both the flanges and rims of chilled wheels.

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Vol. 124 No. 11 March 13, 1948

RAILWAY AGE

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Together, they have met their assigned mileage 94.3% of the time. Twenty-nine of them, delivered between 1939 and 1942, have passed the million-mile mark.

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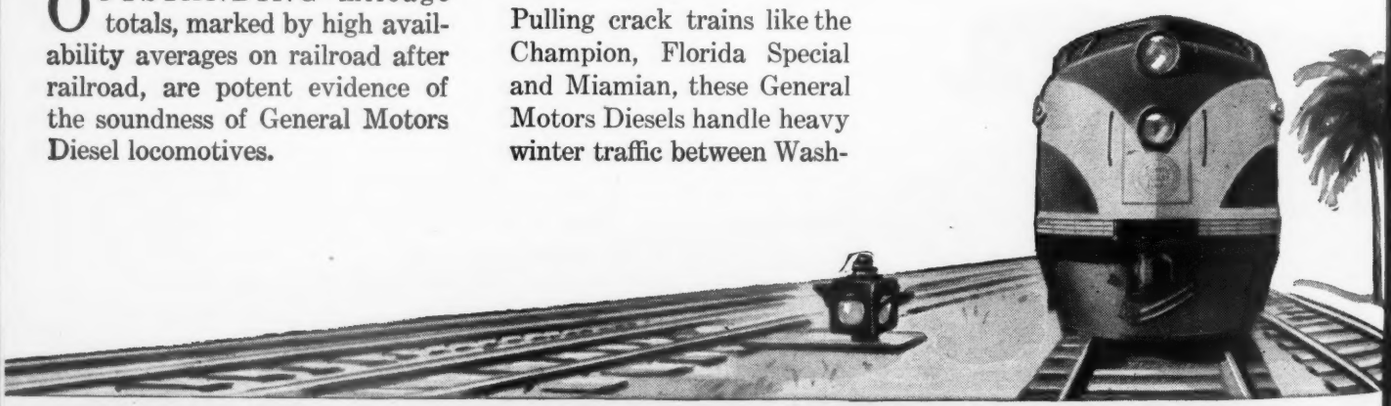

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"RAILWAY ENGINEERING WEEK"

The week beginning March 15 is "railway engineering week" in Chicago. It will be featured by the annual meeting of railway engineering and maintenance officers of this country and Canada under the auspices of the American Railway Engineering Association, and a huge exhibit of important supply manufacturers in the railway construction and maintenance field, under the auspices of the National Railway Appliances Association. As for many years in the past, these associations again meet concurrently, to put their heads together, as it were, to seek solutions of the all-important problems of the roadway and structures forces in the interest of better railroading. And there are still plenty of big problems.

Spending Record Sums

Unlike most "weeks" set aside during the year with official sanction by different organizations or groups to celebrate, commemorate or ballyhoo something, railway engineering week is a serious business affair. Furthermore, there is nothing official in the name. For most of the railway officers who will come to Chicago it will be just another work week. And this year, the events and deliberations may well take on increased significance as the railways—as reported in an article in this issue—plan to spend an estimated $350,000,000 for additions and betterments to their fixed properties—a larger amount than they have spent for these purposes in any year since 1930; and an estimated $1,480,000,000 for maintenance of way and structures—a larger outlay than for any year in the past.

Changed Relationships

That new importance may attach to engineering week in this regard, however, is not so much because of the extent of the work ahead for the engineering maintenance forces, as might appear from the size of the dollar outlay contemplated, but rather that this outlay, grossly swollen as it is to offset inflated labor and material costs, may be far from adequate to undertake the work that engineering and maintenance officers know should be done in the interest of improved service, maximum safety and greatest economy. Furthermore, not a few of those to whom falls the responsibility of the fixed properties view with some concern the continuing ascendency of capital expenditures for equipment, at the expense of the fixed properties, at a time when the needs of these properties are still great. The reason for this concern is clear.

Back in the years 1925 to 1936 capital expenditures for additions to and betterments of the road-

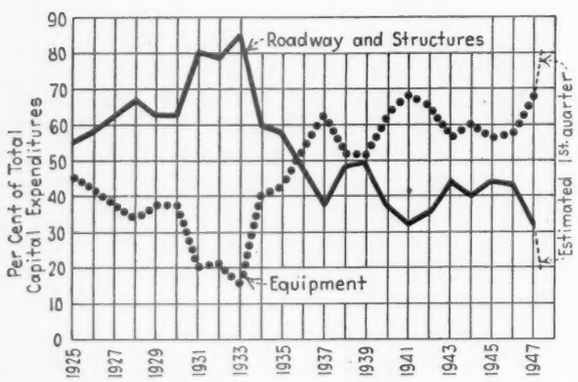
way and structures always exceeded similar expenditures for equipment, the ratio varying from 55:45 in 1925 to 85:15 in 1933. In these years the fixed properties were undoubtedly receiving their proportionate share of the money available for improvements—and possibly more than their share. In 1936, however, and in spite of the inadequacy of improvements to roadway and structures during the depression years, the trend was completely reversed, and since that year, to and including 1947, annual capital expenditures for equipment have consistently exceeded those for additions to and betterments of the fixed properties, reaching an estimated 68:32 ratio in 1947.

And apparently the end is not in sight as, according to estimates compiled by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission, capital expenditures for equipment during the first quarter of the current year will equal about 81 per cent of total capital expenditures, and those for road facilities approximately 19 per cent, or a ratio of about 4 to 1 in favor of equipment.

Much More to Be Done

It is easy to understand why some engineering and maintenance officers view this trend with concern, especially while the needs of their own departments are far from filled—and in spite of the generally recognized needs of the railroads for locomotives and cars for both passenger and freight service. They best know the condition of their tracks, their yards and terminals, their locomotive and train servicing facilities, their freight and passenger stations, and of the multitude of other items that make for an efficient plant—and that without adequacy in these, the very purpose of the large expenditures being made for more and better equipment could be largely offset or nullified.

Scientific improvements in designs and methods may well be the dominant theme during railway engineering week, as they necessarily will be, for there is still much to be done in this field. But some thought may well be given to these larger problems, because it is only too evident that technological advances and know-how—important as they are in themselves—will be of little avail unless administered on a scale commensurate with the needs of the properties for best overall railroad operations and service to the public.



Relation of capital expenditures of the Class I railways for roadway and structures, and equipment, 1925 to date

PRESCRIPTION FOR A "LETTER TO THE EDITOR"

A railroad officer who will take the trouble to write a readable "letter to the editor" when occasion invites is using one of today's most effective means of influencing public opinion. The communications columns of most good city newspapers and some of the national magazines offer an excellent range of subjects and contributors, which draw intensive readership. Obviously, to reach this fine audience the first task is to write the kind of letter the paper will print. Competition for space is keen and a letter has to be interesting and intelligent to stand a good chance of being printed.

G. Murray Campbell, vice-president of the Baltimore & Ohio at Chicago, recently scored with a letter, 12 column-inches long, in the leading Chicago evening paper. His letter was accorded a banner headline and, even, a special cartoon illustration. The letter was inspired by an editorial in the same paper criticizing the age of the B. & O.'s Grand Central station in Chicago as "hyberbolic solecism of antiquity." Such criticism might well have aroused rage or righteous indignation in quarters less attuned to the public mind. Instead Mr. Campbell's letter was calm, humorous and highly persuasive—a discourse on the merits of the architecture of another age, especially when linked with cleanliness, comfort and convenience, all of which the 57-year-old station possesses.

"Enter the portals of Grand Central," Mr. Campbell wrote. "It is cozy and welcoming; has courteous employees; is clean, well-lighted; and its distances are so short that one can slip on a banana peel and land almost next to his train. One can appear distinguished at Grand Central, and, I am willing to wager, a Powers model will get more appraisal there than at any other station in Chicago."

The prescription for a good letter emerges clear from this B. & O. example. (1) It is timely; the issue was met as soon as it arose. (2) It is friendly; has no trace of corporate dignity or the "bulletin to employees" flavor. (3) It seeks not to

defend the railroads but to point out to fellow citizens the advantages they possess. (4) It is humorous. (5) It is signed by the man who has the responsibility for the situation under attack.

SALT IN THE WOUND

An emergency board created by the President to investigate and make recommendations on an unsettled dispute between the Chicago North Shore & Milwaukee and certain of its crafts not only has given recommendations on the issues before it, but has reached out to find and recommend an additional provision which was not even included in the dispute.

The International Union of the Amalgamated Association of Street, Electric Railway & Motor Coach Employees of America had asked for a change in working agreements whereby the employees represented by that union would be paid at the rate of time and one-half for work performed on six specified national holidays. The board in its report amended and *amplified* the union's demand, recommending acceptance of the proposal *"with the inclusion of Sundays."* In recommending the union's request with its own embellishment, the board explained, "The premium payment of time and one-half for Sundays and holidays is largely practiced in other instances."

On top of this expensive expression of whim, the board—following the national pattern—recommended 15½ cents an hour, retroactive to September 1, 1947, in settlement of a demand for a 20 cents an hour wage increase. On six other rule changes before it, the board made recommendations favoring the union in five instances and contrary to its wish in one instance.

The board made these liberal recommendations, and increased the union's request for 6 overtime days to 58 overtime days, in the face of evidence introduced by the railroad which showed that its present income is inadequate to meet current operating expenses; that its operating deficit is increasing; and that it has neither the cash, credit, or other resources to meet any further increase in operating costs. Because no other course is open, the North Shore has rejected the board's recommendations.

Let us look at Friendship Train—a free will offering by the people of America to hungry folks in Europe. It is America at its best. But Friendship Train is but a drop in the bucket. Every working day during the past year, the United States government has bought and shipped 600 carloads of grain to Europe. At 100 cars to a freight train, which is unusually long, that is six train-loads of grain a day—every day!
—Samuel B. Pettengill

IS WEIGHT STRENGTH?

In the report of a rear-end collision on the Missouri Pacific on January 1 near Syracuse, Mo., a summary of which appears in this issue, the Interstate Commerce Commission states that "damage to the rear car of First 9 directs attention to the capacity of lightweight cars to withstand heavy buffing stresses." This car was the twelfth in the first section of the train. It was struck, while moving forward at a speed estimated at 15 miles an hour, by the following section of the train moving at a speed estimated by the crew at 40 miles an hour. The damaged car was of lightweight, welded, low-alloy high-strength steel construction. The remainder of the cars in the train were of conventional heavy carbon-steel construction.

The destruction of the rear car apparently began with the splitting of the draft sills by the steel pilot of the locomotive and proceeded by shearing the sides of the car from the underframe, tearing the draft sills loose from the bolster, and shoving the bolster and other debris into the car for a distance of 53 ft. 3 in. The front end was telescoped for about 12 ft. 6 in.

From the time the first lightweight car was built it was inevitable that some of these cars were going to be destroyed in wrecks, not primarily because they were of lightweight construction but because no car can be constructed capable of withstanding the stresses which may be thrust upon it when the energy stored in moving vehicles is converted into the forces which develop from the sudden interruption of orderly progress along the track. Such accidents do not constitute justifiable cause for a reversion to earlier designs, but their results should be carefully studied with a view to improvement in the details of modern designs.

To go back in the history of the development of conventional heavy carbon-steel passenger equipment, it will be recalled that on February 27, 1917, at Mount Union, Pa., a rear-end collision between a standing passenger train and a freight train, operating at 40 miles an hour, caused the complete telescoping of the rear Pullman sleeping car. This accident brought to light the need for greater shearing strength of the attachments of end posts to underframe, a weakness which was corrected in later designs. That heavy weight in itself is no assurance of the ability to withstand collision shocks may be directly inferred from this instance. Accidents involving the sudden interruption of the rapid motion of a large mass present something of the case of the irresistible force applied to the immovable mass. Unfortunately, the mass, however large, seldom proves to be immovable.

The Palmer House, Chicago

"RAILWAY ENGINEERING WEEK"

Events to include three-day convention of the American Railway Engineering Association at the Palmer House, March 16-18, and extensive exhibit at the International Amphitheatre by the National Railway Appliances Association

Railway engineering week" will get under way at Chicago at 9 a.m. on March 15 when the doors of the thirty-ninth annual exhibit of the National Railway Appliances Association open at the International Amphitheatre. On the following day the three-day annual meeting of the American Railway Engineering Association will open at the Palmer House, ending at noon on Thursday, March 18. Thus, engineering and maintenance officers of the railways of the United States, Canada and Mexico will be afforded an opportunity to sit, as it were, around a round table and review, discuss and pass on the reports of the many technical committees of the association, listen to papers and addresses on subjects that are especially pertinent at this time and to view at first hand a comprehensive display of new and improved equipment, materials and devices used in the construction and maintenance of railway tracks, bridges, buildings, etc.

As in the past the meeting of the A.R.E.A. will be held in the grand ballroom of the Palmer House. The program will consist largely of the presentation of reports by 21 committees of the association on a total of 97 subjects, which will represent the latest developments and practices in the railway engineering and maintenance fields. To supplement the committee reports there will be a number of papers and addresses dealing with subjects of special interest. Reflected in the committee reports and the addresses, to a greater extent than ever before, will be the cumulative effect of the association's extensive research program.

Under the direction of Armstrong Chinn, president, the opening session will convene at 9:45 a.m. on Tuesday. Following the address of the president and the reports of the secretary and the treasurer, the meeting will be addressed by J. H. Aydelott, vice-president, Operations and Maintenance department, Association of American Railroads. Other features of the morning session on Tuesday, prior to consideration of reports, will be addresses by J. A. Beoddy, chairman, Signal Section, A.A.R., and K. H. Gordon, chairman, Electrical Section, Engineering division, A.A.R.

The afternoon session on Tuesday will feature the reports of the committees on cooperative relations with universities, yards, and terminals, and water service and sanitation. This session will be adjourned at 4

The International Amphitheatre, Chicago, scene of the N.R.A.A. exhibit

p.m. to permit those in attendance to visit the exhibition of the N.R.A.A. at the International Amphitheatre.

Both the morning and the afternoon sessions on Wednesday will be given over largely to subjects relating to roadway and track and will be held in the Red Lacquer room of the Palmer House. The morning session will end with an address by Rockwell Smith, research staff, A.A.R., on the Treatment of Sliding Fills by Grouting. Special features of the afternoon session will be discussions of investigations now in progress at the University of Illinois, to be presented by R. E. Cramer, special research professor, and R. S. Jensen, special research associate of engineering materials, and an address by G. K. Manning on the Shelly Rail Study at Battelle Memorial Institute.

Association Luncheon

The highlight of the Wednesday program will be the annual association luncheon, to be held at 12 noon in the Grand Ballroom of the Palmer House, which will be addressed by Clark Hungerford, president of the St. Louis-San Francisco.

At the closing session on Thursday committee reports will be presented, as will addresses by Ruth D. Terzaghi on Surface Deterioration of Concrete and by Dr. R. B. Peck, University of Illinois, on Some Factors Influencing Failures of Abutments and Retaining Walls.

All of the regular sessions of the meeting will be presided over by President Chinn of the association, who is also president of the Terminal Railroad Association of St. Louis, assisted by Vice-President C. H. Mottier, vice-president and chief engineer of the Illinois Central.

More than 100 companies will participate in the N.R.A.A. exhibit of equipment materials and devices at the International Amphitheatre. The exhibit will open, as already stated, on Monday, March 15, at 9 a.m., and will extend through Thursday, March 18. The exhibit will be open on each of these days from 9 a.m. to 6 p.m., except that on Thursday it will close at 3 p.m. Free bus service is to be provided for those wishing to visit the exhibit, and will operate between the Palmer House and the International Amphitheatre on a 10-minute schedule. The exhibit this year is being directed by C. L. Mellor (Barco Manufacturing Company), as president of the N.R.A.A., and R. B. Fisher (Buda Company), as secretary.

PROGRAM

47TH ANNUAL MEETING

Palmer House, Chicago

Tuesday, March 16
Morning Session—9:45 a.m.
Address by Armstrong Chinn, president
Reports of the Secretary and the Treasurer
Address by J. H. Aydelott, vice-president, A.A.R.
Address by J. A. Beoddy, chairman, Signal Section, A.A.R.
Address by K. H. Gordon, chairman, Electrical Section, A.A.R.
Reports of Committees on
Economics of Railway Location and Operations
Highways, Buildings

Afternoon Session—2:00 p.m.
Reports of Committees on
Cooperative Relations with Universities
Yards and Terminals
Water Service and Sanitation
Adjournment at 4:00 p.m. to visit National Railway Appliances Association Exhibit at the International Amphitheatre

Wednesday, March 17
Morning Session—9:00 a.m.
Reports of Committees on
Maintenance of Way Work Equipment
Economics of Railway Location and Operation
Ties
Wood Preservation
Roadway and Ballast
Address by Rockwell Smith, Research Staff, A.A.R., on The Treatment of Sliding Fills by Grouting

Association Luncheon—12 o'clock
Address by Clark Hungerford, president, St. L.-S. F.

Afternoon Session—2:30 p.m.
Reports of Committees on
Track
Rail
Discussions of Investigations in Progress at the University of Illinois, by R. E. Cramer and R. S. Jensen
Address by Dr. Ruth D. Terzaghi on Surface Deterioration Battelle Memorial Institute

Thursday, March 18
Morning Session—9:00 a.m.
Reports of Committees on
Uniform General Contract Forms
Records and Accounts
Waterproofing
Address by Dr. Ruth D. Terzaghi on Surface Deterioration of Concrete
Report of Committee on
Impact and Bridge Stresses
Installation of Officers
Report of Committee on
Masonry
Address by Dr. R. B. Peck, University of Illinois, on Some Factors Influencing Failures of Abutments and Retaining Walls
Reports of Committees on
Iron and Steel Structures
Clearances
Wood Bridges and Trestles

Adjournment

LARGER CONSTRUCTION AND MA

Always cognizant of the need for improved service to the public, and never more mindful of that necessity than now, railway engineering and maintenance officers have laid ambitious plans for construction and maintenance work in 1948 directed mainly toward the faster and more efficient handling of railroad business. These plans envisage the expenditure of an estimated $350,000,000 for additions and betterments to the fixed properties, a record outlay of $1,480,000,000 for maintenance of way and structures, and a further investment of $19,000,000 for new work equipment to make possible the efficient handling of such large programs.

These estimates are based on information obtained by *Railway Age* from the engineering officers of a selected group of typical roads in the United States and Canada concerning their plans for the current year with respect to both maintenance and construction. The chief engineers or engineers maintenance of way of 37 roads, representing 70 per cent of all the operated mileage of the two countries, reported on their 1948 budgets. Thirty of these roads gave details of proposed expenditures. Of these, 18 reported that capital expenditures for fixed properties would exceed those of 1947—one by as much as 17 per cent. Three roads indicated that they would spend less than they did last year, explaining that the decrease was due to the fact that several abnormally large projects were in progress during 1947. Seven of the remaining roads reported that their expenditures would be about the same as last year. The two others gave details of their plans for 1948 but did not make any comparison with expenditures in 1947.

Above—The Dieselization of motor power is requiring that a larger proportion of improvement budgets be devoted to the construction of running-maintenance and repair shops for Diesel locomotives. Below—Projects involving the installation of automatic crossing gates in combination with flashing light signals will be carried out on an increased scale in 1948. It is expected that about 1,100 crossings will receive such attention during the year

Not since 1930 have the railways spent more money for additions and betterments than is proposed for the current year. They planned to spend more at the beginning of 1942, but curtailed production for civilian purposes at the time would not permit fulfillment of these plans. Actual production in 1948, however, measured by volume of work completed, may fall considerably below that in certain prior years because of several adverse factors now obtaining, such as high costs and uncertain or inadequate material supplies.

Large as is the volume of work planned, that volume has been influenced downward to a considerable extent by the present tendency of the railroads to spend freely for new power and rolling stock, urged on by the clamoring of the traveling public for new passenger equipment and the pressure of shippers for more freight cars. The extent to which this trend will affect roadway capital expenditures during the year is indicated by the compilations of the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission that for the first quarter of 1948 capital expenditures for road facilities will equal approximately 19 per cent and those for equipment will amount to 81 per cent of total capital expenditures. By contrast, in the first quarter of 1947 more than 34 per cent was spent for improvements in road facilities while about 65 per cent went into equipment. Since 1939 expenditures for road improvements have averaged about 40 per cent of the total, and since 1923 they have averaged about 50 per cent. Should this trend of emphasis on equipment purchases continue to eat into the road share of capital expenditures, the end of 1948 may find many road and structures improvement projects deferred, some of which could even offset the advantages of the new equipment.

To effect the full economies possible with much of the new equipment being purchased, a large amount of construction of tracks and structures is necessary. Diesel locomotives may be able to haul longer trains over certain territories, but a part of the economy in their use is lost if they must "double" into yards because yard tracks are too short. Likewise, their most effective and economical use requires that they be properly serviced and maintained, which, in turn, calls for adequate servicing and shop facilities.

With these considerations in mind, in most cases, 38 per cent of the roads giving detailed information as to their budgets indicate that they plan new yards or improvements to old ones. Three of these projects will cost more than $1,000,000 each. It is significant of a growing and commendable trend that at least one large

MAINTENANCE BUDGETS AIMED AT IMPROVED SERVICE

Expenditures for maintaining tracks and structures may reach all-time high—road capital expenditures are expected to be greatest since 1930

road reports it will install new rail and stone ballast on yard ladder tracks to put "the important part of our yards in a condition comparable to mainline standards."

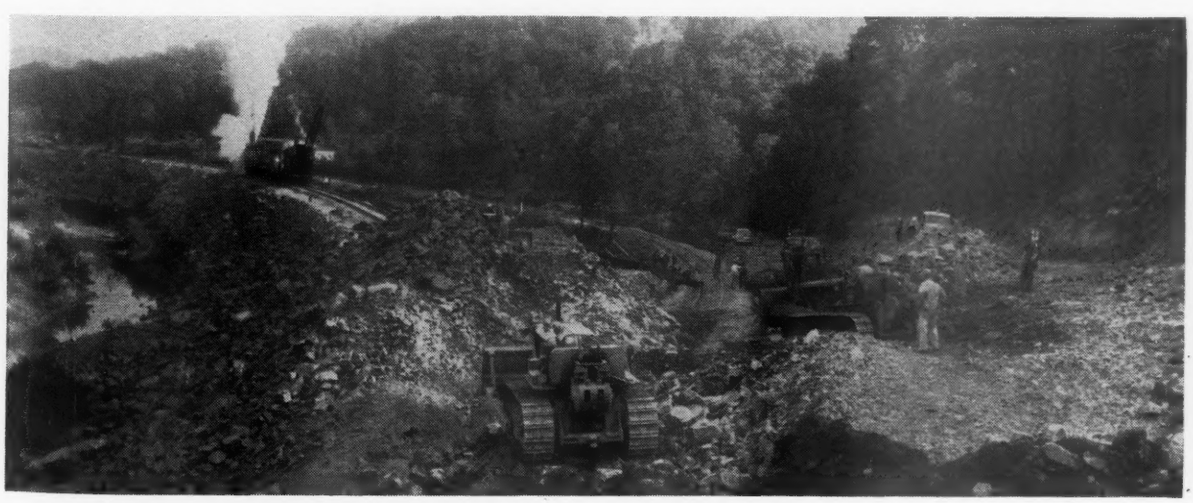
As to engine-handling facilities, influenced by the gathering momentum of Dieselization, plans call for—with work already under way in many instances—new running maintenance and repair shops, additional servicing facilities, the installation of fire prevention equipment, and the enlargement of fuel-oil storage facilities. Work of this nature will be undertaken this year by at least 21 roads, at a cost of more than $7 million—a much larger total expenditure for this classification of construction than was in progress during 1947.

Revisions of grade and alinement, on which more activity was evident in 1947 than in any other category of improvement work, are not prominent in the detailed budgets for 1948. Only six roads reported definite plans for improving operating conditions by reducing curvature and grades. One of the projects planned, however, involves an expenditure of more than $2 million, and one road indicates that it will undertake 18 revisions of alinement and grade "to the end that our train speeds can be increased and overall time in transit substantially reduced, better riding comfort offered and wear on rolling stock minimized." In addition to new projects a large amount of such work not completed last year is being continued in 1948, so that it may be expected that the total work of this nature finished during the year or in progress at its end will be as high as last year.

No category of railway improvement work in 1948 will exceed in activity or money volume that which has been planned by the signal and communications departments. More than 50 per cent of the roads giving information on their budgets indicate that signaling expansion will be heavy during the year. These roads, while only a few more in number than those which reported such work planned in 1947, expect to spend almost three times as much money this year. This would indicate that all of the roads of the country will spend in excess of $50 million in 1948 for signal and communications installations.

This work will be divided among many classifications. Installations of centralized traffic control will continue to be numerous. New interlockings will be built. Communications systems of various types will spread over many yards and terminal areas, and even over entire railroads. However, in no classification will the activity exceed that which will be involved in the extension of block signaling and automatic train control or cab signaling. These types of work will reach large proportions before the end of the year and it is expected that they will continue in high volume for at least five years.

Closely allied with signal construction, and usually included in its cost, is the protection of highway and pedestrian traffic at grade crossings. Such work is receiving increasing attention from improvement planners, and automatic flashing-light signals, or short-arm automatic gates in combination with such signals, are becoming more the rule than the exception for such protection. That this type of construction work is



It is expected that the total amount of grade and line revision work to be finished during 1948, or in progress at its end, will be as high as last year

increasing can be seen from the fact that 24 roads report that they will install additional protection at 437 crossings during the year. This indicates that no less than 1,100 crossings will receive such attention throughout the United States and Canada in 1948. This compares with 789 actual installations in 1946, and 1,084 in 1947.

More Grade Separations

Grade crossing elimination work moved in 1947 toward the prominence it held before the war. Being relatively large, many projects of this character, started last year, are progressing toward completion in 1948. Others are being initiated by the various states to conform with their plans of expressways, superhighways, freeways and other through routes. That the volume of this type of work will increase in prominence is seen in the reports of 23 roads that they have in progress, or plan to undertake in 1948, a total of 113 projects. This compares with the reports of 20 roads at this time last year that they planned or had in progress a total of 71 grade separations.

The prospect for bridge construction in 1948—as was the case early in 1947—is so interlocked with the uncertainty of the availability of structural steel that any forecast of the magnitude of this class of work must be largely a matter of conjecture. A few signs have appeared within the past several months pointing to increased activity in large bridge projects, including the awarding of contracts for the superstructures of several large railroad bridges, but the general outlook for bridge construction is clouded by deterring influences. However, in spite of these influences, there is some likelihood that the volume of such work will exceed that of 1947.

Numerous other types of projects are included in the budgets for 1948, directed mainly at "improved operations," as one road put it. These include many freight and passenger stations, car shops, office buildings, caricing facilities, drainage installations, passing siding extensions, new spurs, new lines, wharves and docks, and a variety of other work.

As to the maintenance of their fixed properties, the railroads of the United States and Canada are planning to spend more money on this class of work during 1948 than they have spent in any other single year. On the basis of specific information furnished by 29 roads, maintenance expenditures of the roads as a whole will amount to about $1,480,000,000. This is $193 million more than it was expected they would spend last year, and about $80 million more than it is estimated was actually spent.

Eight roads reported that their budgets would be about the same as last year, as did two other roads that did not give definite amounts. All others reporting stated that their expenditures would be larger, the average being about 11 per cent. Not a single road indicated that it might spend less than it did in 1947. However, because of the prevailing higher costs of labor and material, it is estimated that the work actually accomplished in 1948 will amount to about the same as last year.

At the same time, activity in some classes of work is expected to exceed that of 1947, provided the deterring influences present do not exert themselves too strongly. According to figures recently released by the Interstate Commerce Commission, there is more deferred maintenance in rail than in any other roadway account. Recognizing this, the railways have planned for several years to overcome this deficiency but have been thwarted at practically every turn. Again this year, according to their budgets, they will attempt to reduce this large backlog of rail needs. In fact, it is estimated that they will lay 2,100,000 net tons of new rail and relay a large amount of secondhand rail. While more rail than this was budgeted for renewal in 1943 (but not laid), as much has not been actually laid in any year since 1929. There are indications that this large program might be still larger if it were not for the general shortage of steel and the amount that is being allocated to the construction of freight cars.

Following customary practice, the current budgets call for ballast allotments proportionate to the amount of rail to be laid. All except one of the roads reporting their plans indicated that they would apply more ballast during 1948 than in 1947. The one exception is a road that is purposely curtailing its rail program because of the inability to secure steel and it, consequently, expects to apply less ballast.

More Ties Will Be Installed

Consistent with their large rail and ballast programs, the railways expect to install about 50,000,000 crossties during 1948. This is about the same as they planned to use in 1947, but somewhat more than they actually put in track. Each of 12 roads reported that it

CAPTIONS READ LEFT TO RIGHT

Almost twice as many grade-crossing elimination projects are in prospect for 1948 as were planned at this time last year

Many new freighthouses are being constructed in 1948 and equipped with up-to-date materials—handling facilities to improve service to shippers

Maintenance budgets include a tonnage of new rail greater than has actually been laid in any year since 1929

expects to replace more than 1,000,000 ties. Thirteen roads indicated that 1948 insertions will exceed those of 1947, six expect decreases, and three have planned allotments equal to last year. One of the roads indicated that the decrease it was reporting in the number of ties to be installed is due to the fact that "we are beginning to feel the benefits of treated ties in our tracks."

Lacking the definite indications that point toward record expenditures for track work, bridge and building maintenance in 1948 is expected to be routine. A few roads report that their expenditures for such work will be "heavy," "extensive" or "appreciable," but the majority state that they will be "normal." Those that plan large programs indicate that a major part of such work will consist of items carried over from prior budgets because of past difficulties in obtaining materials. Only a few classifications of repairs are expected to increase much over prior years. Among these are the painting of bridges and the maintenance of timber trestles and culverts.

Indication of a growing trend in bridge and building maintenance is noted in the remarks of the chief engineer of one road that now has under way a general repair and replacement program covering all of its structures. Where replacement of a structure is justified by its physical condition, or where it does not meet present-day requirements, he points out, it is being replaced by a modern streamlined structure constructed of concrete, brick or other durable material that will keep future repair costs as low as possible. High costs of labor and material make it imperative that all present repair and replacement programs be considered in the light of future maintenance expense.

Reasons for Expenditures

The roads questioned as to their plans for 1948 were asked to advise what part of their improvement program was required because of the obsolescence and inadequacy of existing facilities. As in past years, to this question many divergent replies were received, varying from "no part" to "practically 100 per cent." Some officers said that no definite answer was possible. Others said that while obsolescence and inadequacy accounted for a large portion of their replacements, these factors did not affect their construction of new facilities. Practically all those answering this question agreed that their new facilities, and some of their replacements, were undertaken to improve their service to shippers and passengers, to increase safety, to effect economies in operation, to provide for new business, or to reduce future costs of maintenance. With plans for additions and betterments to the fixed properties designed to these ends, it is surprising that the volume of improvements contemplated is not higher than it is.

The same roads were also asked two similar questions as regards maintenance—(1) How much of your maintenance program is necessary because of the unusual wear and tear of traffic during recent years, not overcome currently? (2) To what extent is your maintenance program affected by new or contemplated improvements in train service or higher speeds?

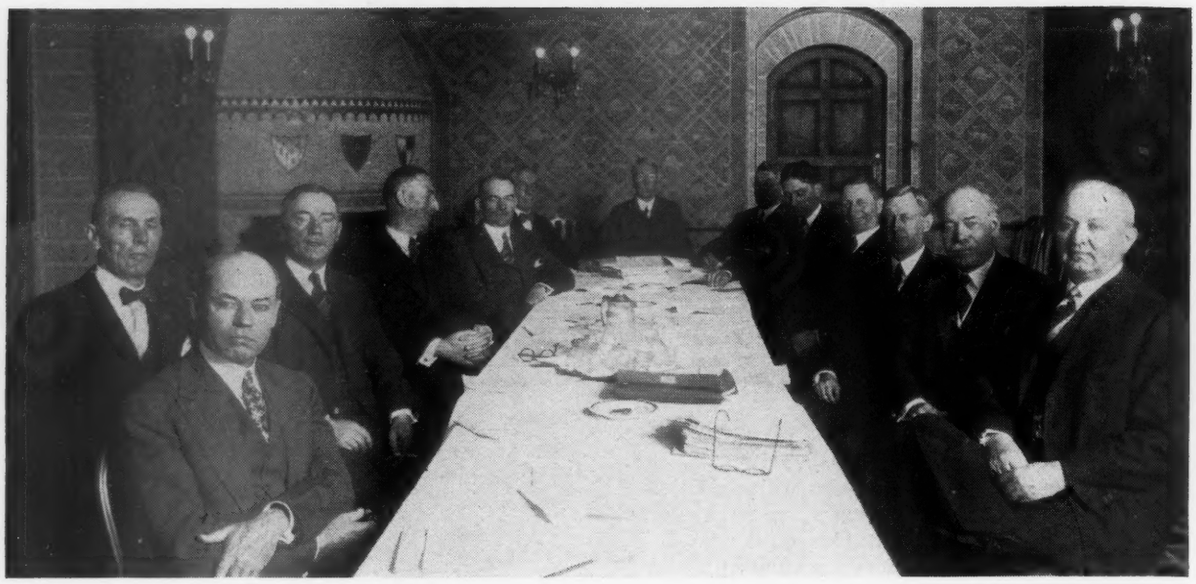
The replies to the first question varied, but not so widely as in former years. One officer admitted that shortages of labor and materials accounted for 25 per cent of this year's maintenance budget which is designed to overcome the deficit in two years. Another said that practically all of his road's deferred maintenance had been overcome except in rail and bridge painting. The replies from most other roads indicated that practically all of their deferred maintenance had been overcome except that of rail, and of bridges and buildings. One officer stated that he is working on a definite 10-year program to reduce his rail requirements to a normal basis.

More Equipment—To Keep Costs Down

To keep their improvement and maintenance expenditures as low as possible through increased production and lower unit cost, the railways plan to purchase approximately 9,500 units of work equipment in 1948, at an estimated cost in excess of $19,000,000.* This is about the same amount of equipment as was purchased in 1947.

In this connection, there was significant unanimity of opinion among those reporting purchases—that their purchases are aimed at reducing the effect of increased labor costs on their maintenance and improvment work. Unquestionably, without the aid of adequate power machines, the contemplated total expenditure of $1,830,000,000 for improvement and maintenance work in 1948 would have to be far higher to accomplish the same results, or actual production would be far less than now expected.

* A detailed analysis of these purchases appears in the March, Equipment Economies Issue of Railway Engineering and Maintenance.



Board of Direction of the A.R.E.A. in session at the Palmer House in March, 1927. Proceeding around the table from left to right, and giving their railroad connections at the time, these men are: Arthur Ridgeway, ch. engr., D.&R.G.W.; J. L. Campbell, asst. to ch. engr., Sou. Pac.; C. E. Johnston, v.-p. and gen. mgr., K.C.S.; J. M. R. Fairbairn, ch. engr., C.P.R.; L. A. Downs*, pres., C. of Ga.; E. H. Fritch*, secretary, A.R.E.A.; C. F. W. Felt*, ch. engr., A.T.&S.F., and president, A.R.E.A.; D. J. Brumley, ch. engr., Chicago Term. Imp., I. C., and vice-president, A.R.E.A.; W. D. Faucette*, ch. engr., S.A.L., and vice-president, A.R.E.A.; G. D. Brooke, asst. to v.-p., C.&O.; W. P. Wiltsee, ch. engr., N.&W.; Robert H. Ford*, asst. ch. engr., C.R.I.&P.; and A. F. Blaess*, ch. engr., I.C.

* Deceased

PARALLEL PROGRESS AND ACHIEVEMENT— A STORY OF TWO ASSOCIATIONS

A brief review of the inception and growth of the American Railway Engineering Association and the National Railway Appliances Association

Railroad men attending the convention of the American Railway Engineering Association will find prepared for them a program of business sessions during which, in the brief span of three days, committee reports on 97 assignments and a great deal of other work will be acted upon with clock-like precision, and yet with great deliberation. They will also find, presented for their inspection in the International Amphitheatre on Chicago's south side, a great display of the latest machines, devices and materials that are available for use in maintaining the railroads' fixed properties.

Behind these events are two entirely separate institutions—the A.R.E.A. and the National Railway Appliances Association—both of which are performing roles vital to the railroad industry, the one dealing with methods, designs, specifications and technical know-how, and the other functioning in an educational capacity by bringing the latest products and developments of its member companies under one roof for convenient inspection by those who use them. The annual A.R.E.A. meetings and the N.R.A.A. exhibits have been held concurrently for so many years that few men now living can remember the time when neither of these groups was in existence. Under these circumstances it is easy to fall into the habit of taking the two organizations for granted, of assuming that they "just happened," and thereby failing in a full appreciation of a really significant development in railroad history—the parallel growth of these mutually complementary associations. Hence, the histories of the two associations are sketched here in broad outline to show at least some significant developments in their origin and growth.

To some extent the material presented herewith was obtained from official records. However, since the available records of the N.R.A.A. do not go back to the earliest days of this association, it was necessary to fill in this gap with information from other sources. It was necessary to lean heavily on the bound volumes of the *Railway Age* and its predecessors,† which, in fact, constitute the only known source of certain of

Meeting of the officers and the board of directors of the N.R.A.A., held at the offices of the association, Seeburg building, Chicago, on Sunday, March 7, 1926. These men, and their business affiliations at that time, are: (left to right) F. M. Hartley, National Lead Company; S. P. McGough*, Lorain Steel Company; J. W. Fogg*, MacLean-Fogg Lock Nut Company; L. E. Weidman, Frog, Switch & Manufacturing Co.; A. L. Greenabaum*, O. F. Jordan Company; secretary-treasurer and director of exhibits, C. W. Kelly*, Kelly-Derby Company, Inc.; president, W. V. Gillingham*, Union Switch & Signal Co.; vice-president, W. B. Murray, Miller Train Control Corporation; honorary director, A. J. Filkins, Paul Dickinson, Inc.; M. C. Beymer, Oxweld Railroad Service Company

* Deceased

the information desired, particularly where it was necessary to trace the records back into the closing years of the last century.

Any study of the records of the two associations immediately develops the rather surprising fact that the N.R.A.A. was in existence under another name for a number of years before the A.R.E.A. was organized. The answer is that the original manufacturers' group was first organized to exhibit during the conventions of the Roadmasters' Association of America (now the Roadmasters' and Maintenance of Way Association of America). The Roadmasters' Association came into existence in 1882, and even during its earliest meetings there were always to be found in the same hotel at least a few exhibits of interested manufacturers.

As time went by the need became apparent for group action on the part of the supply companies in arranging the exhibits. In response to this need the Road and Track Supply Association was organized. Later to become the N.R.A.A., this organization held its first formal business meeting at the Broadway Central Hotel, New York, on September 10, 1894, with about 40 companies represented.

In the beginning the exhibits were conducted under difficulties. Since the practice of the Roadmasters' Association was to hold its annual meetings at widely-scattered locations, the manufacturers, in presenting their exhibits, had to make the best of whatever space was available at the particular point selected. Such were the limitations encountered that in at least one instance the exhibit was held out of doors, and in another the only space available was in some nearby vacant store buildings. Under such circumstances it is not surprising that the exhibits were, of necessity, frequently confined entirely to literature or to small-size models, and, consequently, were correspondingly limited in value to railroad men.

How A.R.E.A. Started

During the closing years of the century, while the Road and Track Supply Association was continuing to exhibit at the roadmasters' meetings, the need was becoming evident for an association of railway engineering and maintenance officers that would coordinate the efforts of the railroads in dealing with the ever-increasing number of engineering problems confronting them at the time, beyond the scope of the Roadmasters' Association. Among those who recognized such a need was H. P. Robinson, then editor of *Railway Age,* who early in 1898 initiated a movement to organize an association of engineering and maintenance officers. As a preliminary step to this end Mr. Robinson circularized a large number of higher officers in these departments throughout the country, requesting expressions of opinion on the matter.

Encouraged by the results Mr. Robinson called a meeting of interested officers for the purpose of organizing an association. Held at the Auditorium Hotel, Chicago, on October 21, 1898, this meeting was attended by 17 engineering and maintenance officers. Presided over by Mr. Robinson, the group quickly passed a motion to organize an association of "main-

Continued on page 87

† Around the turn of the century there were a number of weekly publications in the railway field, and notably the *Railway Gazette* and the *Railway Age.* Effective June 5, 1908, these publications were merged to form the *Railroad Age Gazette,* which became the *Railway Age Gazette* in January, 1910. Since the issue of January 4, 1918, this magazine has been published under the name *Railway Age.*

NEW AND IMPROVED PRODUCTS
Of the Manufacturers

Presented in these pages are descriptions of a large number of materials, machines and devices applicable to the wide range of work carried out by the engineering and maintenance forces

The Nalco Type M flow switch

Flow Switch

1 A device known as the Nalco Type M flow switch, for the automatic starting and stopping of chemical pumps and mixers is now being offered by the National Aluminate Corporation, Chicago. When installed in a raw-water line, the flow switch starts chemical pumps and mixer motors as the water begins to flow through the line, and turns such equipment off when the flow ceases.

The switch contains a flexible bronze paddle which is inserted into the raw-water line at right angles to the direction of flow. Fastened to the upper end of the paddle is a stainless steel armature plate. Magnetic attraction of the switch mechanism to the armature plate causes the circuit to remain open until it is closed by the action of the paddle when it is actuated by the flow of water in the line. The entire switch mechanism is sealed and is completely water tight.

The body construction of the switch is entirely of bronze to avoid interference with the magnetic mechanism. A tension arrangement permits adjustment of the paddle for operation in lines of various flow rates. The paddle is furnished in a length sufficient to operate in 14-in. pipe lines and may be trimmed off to suit smaller pipe sizes.

Fire-Resistant Building Paint

2 Plicote, Inc., Pittsburgh, Pa., has announced a new fire-resistant paint, called Fire Stop, which is said to be an improvement on fire-resistant paints originally developed for the navy.

Fire Stop, it is reported, can prevent the majority of serious fires by stopping small fires before they spread. According to laboratory tests, it is said, flames produced by exposing a wall covered with Fire Stop to the flame of a bunsen burner at 3,000 deg. F. extinguished themselves within 8 to 15 secs. after the burner was removed, while flames produced by the same means on an ordinary painted wall continued to spread rapidly.

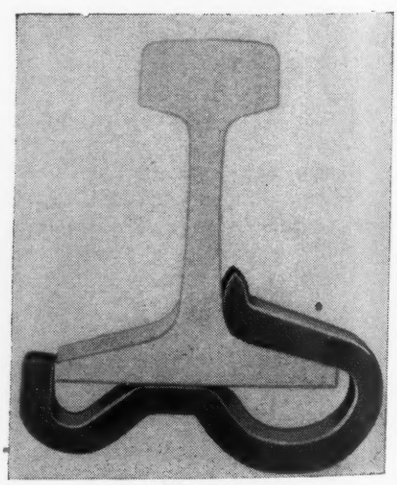
The paint is ready-mixed and self-sealing, and one coat is said to cover wallpaper, plaster, composition material, concrete, steel, brick or wood. It is manufactured in white and five colors, and is reported to dry to a flat finish which is washable.

Gautier Rail Anchor

3 The Mid-West Forging & Manufacturing Co., Chicago, has introduced the Improved Gautier rail anchor, which is said to be easier to apply and to have better holding power than the former model. Another feature of the improved anchor is that it has four bearing points on the rail.

The Improved Gautier is a one-piece anchor, made of 1⅛-in. by ¾-in. alloy spring-steel bars. To install the anchor, only two steps are necessary. It is first hung on the rail against the tie and then locked securely to the bottom of the rail by one hard and one light blow with a spike maul. Overdriving is prevented by the loop end of the anchor which bears against the fillet joining the web and base of the rail. The anchor can be removed quickly by striking down on the opposite end.

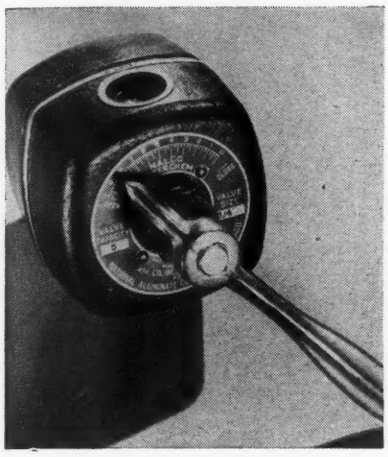
Because the bend radii are large, localized stresses are said to be eliminated, and the anchor can, therefore, it is claimed, be applied and reapplied with-



Showing how the Improved Gautier rail anchor fits on the base of the rail

out impairment of its holding power. It is claimed further that the improved anchor has a substantial takeup, and that it can, therefore, be used on old rails as well as new.

The improved anchor is said to provide a large bearing area against both the tie and the rail. Also, the load is said to be distributed widely and evenly, eliminating points of concentrated loading.



The Nalco Meterchem Valve

Flow Control Valve

4 The National Aluminate Corporation, Chicago, has announced a new flow-control valve, known as the Nalco Meterchem valve, for regulating the flow of solutions of water-treating chemicals. The rate of flow is controlled by rotating an iron disc by a handle and stem. As the disc rotates from the closed to the fully-open position it uncovers a port in the seat plate in such a manner that the area of opening varies with the position of the handle. A calibrated dial and pointer arrangement makes valve settings visible at a glance, a feature said to increase the accuracy of setting and resetting.

Another feature of the new valve is a two-part housing which can be disassembled to facilitate the cleaning of the valve. A standard ¾-in. pipe tap on each half of the housing is provided for installing the valve in the chemical solution pipe line between the chemical pump and the water storage tank.

Protective Coating for Masonry Faces

5 The Sika Chemical Corporation, Passaic, N. J., has announced a new compound, known as Sika-Kote, for protecting and decorating exterior and interior surfaces of porous masonry or concrete, which is said to seal such surfaces effectively against dampness. This product is a finely-ground powder, cement-like in nature, which is manufactured in white or standard colors. Properly cured, Sika-Kote is said to produce an egg-shell like finish free from dusting and flaking.

After mixing with clean water, this material is usually applied in two coats on surfaces which have first been patched, cleaned and then saturated with water. For the first coat a stiff fibre brush is recommended to insure the filling of all pores. The second coat can be brushed on after the first has hardened. In curing, the coating should be kept continuously moist for two days.

Diesel Pumping Unit

6 A Diesel automatic pumping unit, designated as the Model 34-D, which is said to be applicable for numerous railroad pumping requirements, has been developed by the R. H. Sheppard Company, Hanover, Pa. Since the unit is completely self contained, and independent of outside power sources, it can be used at isolated water or fuel-oil stations and for drainage pumping. It can be equipped for starting and stopping from remote points by either manual or automatic controls.

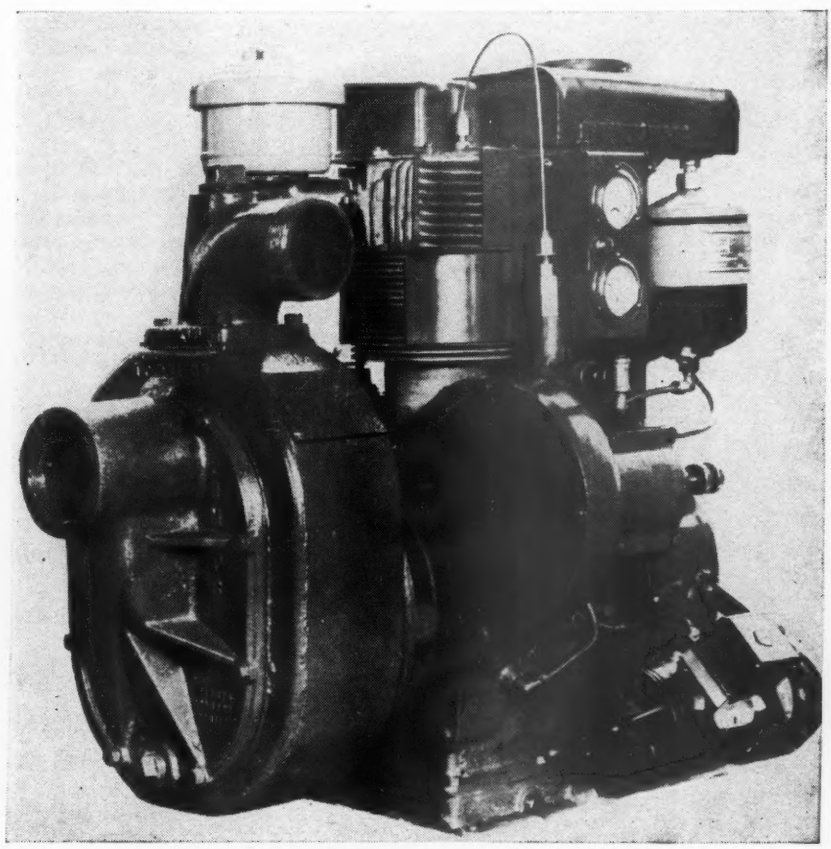
The pumping unit consists of a 3½-hp., air-cooled, single-cylinder, Sheppard Diesel engine, direct-connected to a self-priming, centrifugal pump, rated at 220 g.p.m. It is claimed that the unit will pump 36,500 gal. of water for each gallon of fuel consumed.

Three New Jacks

7 Three new units have been added to the line of jacks manufactured by the Duff-Norton Manufacturing Company, Pittsburgh, Pa. These include a lightweight track jack, a 25-ton capacity hydraulic journal jack, and an hydraulic jack for lifting work in close quarters, known as the new Lo-Hite jack.

The new track jack, known as Model 117-A, is identical with the Model 117, except that is has an aluminum-alloy base, with consequent reduction in the over-all weight of the jack. Because of its light weight (42 lb.) the new jack is said to provide easier and faster service in track-surfacing and lining operations. Danger of accidental tripping of the load is said to be eliminated by the Duff-Norton spring-actuated pawls.

The new light-weight, 25-ton capacity hydraulic journal jack is reported to weigh 25 per cent less than standard Duff-Norton models of the same capacity, yet is said to possess the same power, strength and service life as the standard models. Two models of this

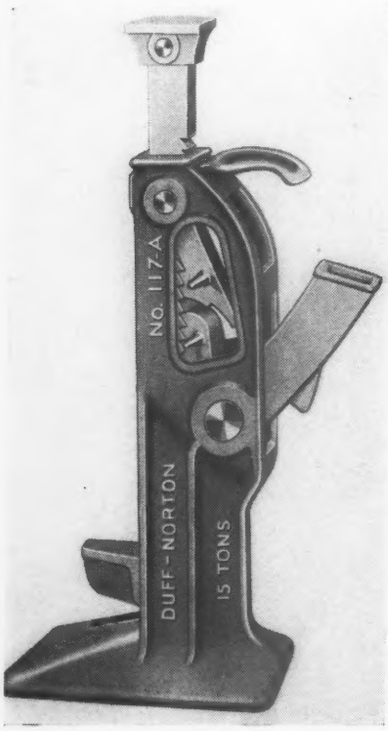


The Sheppard Diesel engine, direct-connected to a self-priming centrifugal pump

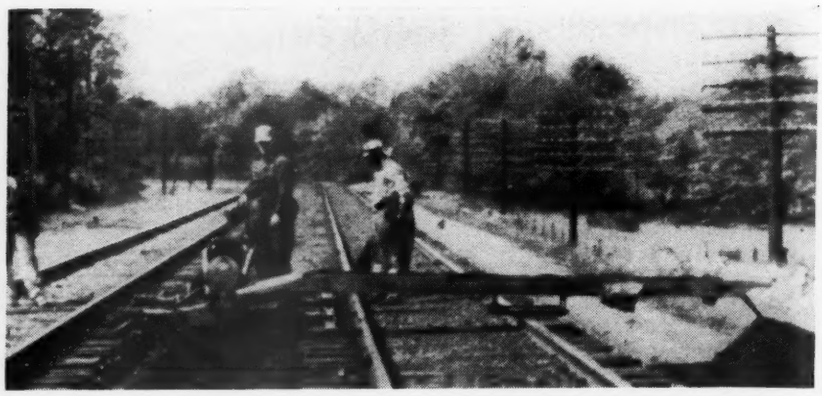
The new Duff-Norton light-weight, 25-ton hydraulic journal jack is available in two models, one of which is shown here

jack are available, both having a capacity of 25 tons. The 25H 7.5 has a raise of 4 in., a closed height of 7½ in. and weighs 35 lb. The 25H 9.3 has a raise of 6 in., a closed height of 9⅜ in. and weighs 38 lb.

The new "Lo-Hite" hydraulic jack is fitted with an independent pump which is connected to the jacking mechanism by a length of rubber tubing. The pump can be operated from the ground or from any convenient place, when the jack itself is spotted in close, confined positions.



The Duff-Norton Model 117-A track jack with aluminum housing



One of the improved Moles in operation

Oil in the "Lo-Hite" jack is sealed-in so that it is completely isolated from the jack exterior, thus permitting use of the jack in both vertical and horizontal positions. When not in use, the jack folds into a compact, easily-carried unit.

Improved Mole

8 The Railway Maintenance Corporation, Pittsburgh, Pa., has announced the development of an improved Mole incorporating changes in design which are reported to give the machine a digging and cleaning capacity approximately 25 per cent greater than previous models. Most of the parts of the new machine are said to be stronger and more easily accessible for maintenance and repairs. The power of the unit has been increased by 30 per cent, and an electric starting motor has been provided.

Another feature of the improved Mole is the application of an entirely new hydraulic drive for the rear swing dirt conveyor. Since this permits the swing conveyor to operate at any angle, it can be swung to clear road-side obstructions while still in operation, and for this reason the swing conveyor can now be made in any desired length.

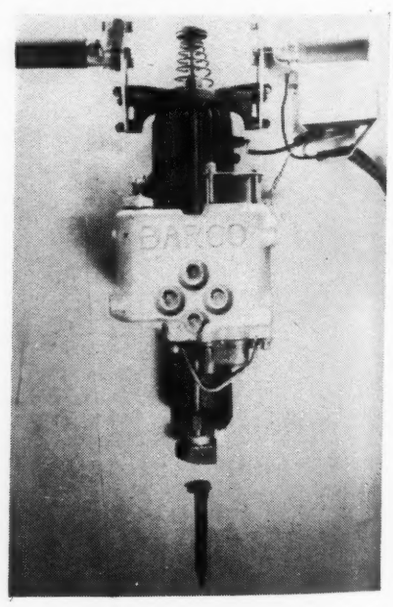
Also drive gears such as were used in the previous models have been eliminated in the new machine, thereby, it is said, reducing the repair costs and increasing the efficiency of the screw conveyor.

Barco Spike Driver

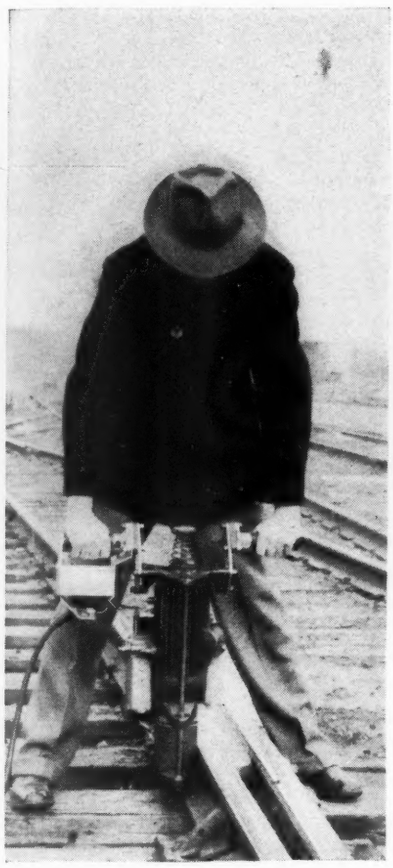
9 A new gasoline-drawn spike driver which has been developed from this company's H-6B concrete breaker, has been announced by the Barco Manufacturing Company, Chicago. Essentially the H-6B concrete breaker consists of a piston and spring combination actuated by a gasoline-powered cylinder to deliver 1,450 to 1,550 hammer blows per minute. Ignition is accomplished by a spark coil connected by cable to a battery. The fuel tank is mounted on the unit. At the top of the unit there are two hand grips permitting one-man operation.

The new Barco spike driver is similar in appearance and construction to the H-6B concrete breaker, since most of the main parts of the concrete breaker were used for the spike driver. The principal difference is that, on the spike driver, the coil is located on the handle, and there is only one low-tension wire between the coil and battery instead of the low and high-tension wires used in the concrete breaker. This wire is usually of such length that the operator may drive spikes for a distance of 50 to 100 ft. before it becomes necessary to move the battery to a new location.

In addition to driving conventional spikes in open track, the new spike driver is adapted for driving spikes at crossovers and other locations where the space is limited, and for driving anchor spikes. The Barco Gasoline Spike Driver is particularly valuable for driving spikes in yards, terminals



The Barco gasoline spike driver



Driving a spike with the Barco gasoline spike driver

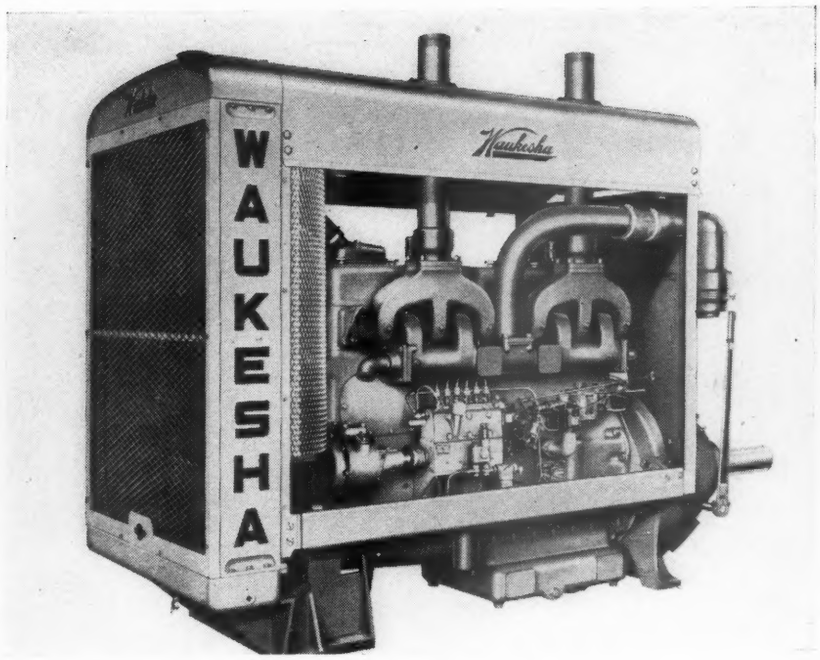
and other locations where traffic is heavy, since the use of this machine does not tie up the track.

Diesel Power Units

10 Two heavy-duty Diesel power units, designated as Models 6-WAKDU and 190-DLBU are now being offered by the Waukesha Motor Company, Waukesha, Wis. The Model 6-WAKDU is the larger unit, being rated at 190 hp. at 1300 r.p.m. and is constructed around the Waukesha Model 6-WAKD Diesel engine. This engine is a 6-cyl. unit with a displacement of 1197 cu. in. and is cooled by a large-capacity, gear-driven centrifugal water pump.

Quick warm-up and maintenance of uniform jacket heat are assisted by thermostats. Lubrication of the engine is by means of an outside-mounted, gear-type pump which forces oil through large drilled passages to each point requiring lubrication.

The power unit is mounted on a foot-type, flywheel housing with welded steel front supports. An instrument panel contains operating controls and an oil pressure gage, and the unit is also equipped with high-water-temperature and low-oil-pressure cut-off switches. The housing is of pressed steel with removable side panels.



One of the Waukesha Model 6-WAKDU Diesel power units

The power take-off in the Model 6-WAKDU is of the heavy-duty clutch-type with a 3 15/16-in. by 10-in. shaft. The unit is started by means of an independent four-cylinder, Waukesha Model ICK gasoline-starting engine. Change over to Diesel operation is by means of a manual pinion shift with over-running clutch.

The Model 190-DLBU power unit is somewhat smaller and utilizes the Waukesha Model 190-DLA Diesel engine. This unit develops 52.6 hp. at 180 r.p.m. The engine is cooled by a combination belt-driven fan and water pump and has thermostatic controls for quick warm-up. Lubrication is pressure fed and is of the metered intermittent jet-and-spray type. The mounting, housing and instrument panel are similar to those of the Model 6-WAKDU. However, in this unit, the clutch-type power take-off, the oil-pressure devices and an electric starting motor are accessories, available at extra cost.

Electric Plants

11 D. W. Onan & Sons, Inc., Minneapolis, Minn., has developed a new line of Diesel-electric plants designed to provide low-cost electric power under continuous operating conditions on either mobile or stationary jobs. Two general types of these plants are available, one type being operated by a water-cooled Diesel engine, and the other powered by an air-cooled Diesel engine.

The Onan water-cooled Diesel-electric plant is enclosed in a weatherproof, sheet-steel housing with removable side panels for easy servicing, and has a welded base of heavy structural steel. It has a heavy-duty "Lanova" full Diesel engine with large capacity copper-and-brass radiator, and a six-blade, belt-driven pusher fan. A welded steel battery-and-accessory rack contains two six-volt starting batteries which are kept fully charged by a 12-volt, belt-driven generator.

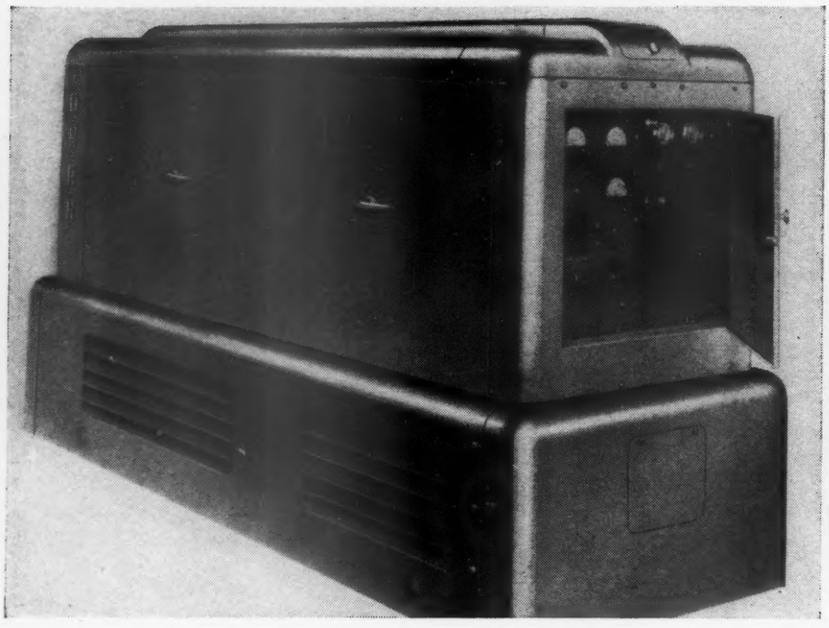
The plant has an Onan saturated-field generator which is said to have good voltage regulation without the use of rheostats or other external electrical equipment. If extremely close regulation is needed, however, automatic voltage regulators can be supplied.

The engine instrument panel is built-in, as is the electric instrument panel, eliminating the need for a separate switchboard, and the panels are illuminated by a 12-volt pilot light. All alternating-current models have a running-time meter.

Either 50 or 60-cycle alternating current models of the water-cooled Diesel-electric plant are available in capacities ranging from 10,000 to 35,000 watts, with voltages ranging from 115 to 380. Direct-current models of the water-cooled plant can be supplied in 10,000 and 15,000-watt capacities with voltages of 115 and 230.

The Onan air-cooled Diesel-electric plant is said to be unusually compact and light in weight. The application of air-cooling to the Diesel is claimed to simplify servicing and reduce maintenance costs.

The Diesel engine in this plant is a one-cylinder, four-cycle unit. Electric cranking of the engine is made possible by a specially-designed automatic com-



The Onan water-cooled Diesel-electric plant

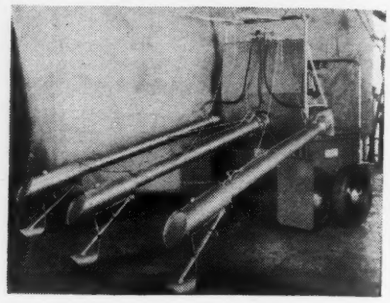
pression release. Starting controls are located at the plant, and additional starting controls can be installed at stations within 250 ft. of the unit. This plant also, has the Onan saturated-field generator. All engine and generator controls required for operating the plant are located on the steel base.

The plant has a built-in fuel tank. The air-cooled Diesel-electric plants are available in either alternating or direct-current models of 2,500-watt capacities, with voltages of 115 to 230.

Weed Burner

12 An off-track weed burner consisting of a burner unit mounted on a rubber-tired trailer and designated as Model PB-3T, has been announced by the Woolery Machine company, Minneapolis, Minn.

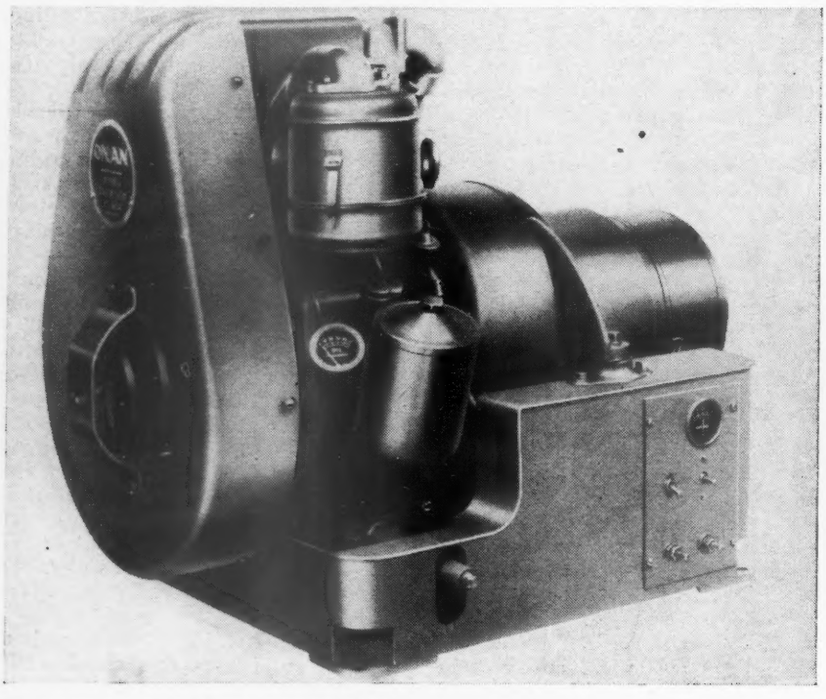
The burner unit is powered by a 2-cylinder, 10-hp., 4-cycle gasoline engine. A steel pressure blower with multiple V-belt drive supplies the air for the burners. Each of the three burner pipes is fitted with a skid at the burner head to maintain the proper distance between the burner head and the ground when the lift chains are slacked. The burner pipes can be lifted in unison by a hydraulic cylinder which is operated from the same pressure pump which supplies the fuel for the burners. The burners can be used together or individually, as desired. When the three burners are in operation, they can all be turned off quickly by a lever-action master valve.



The Woolery Model PB-3T weed burner

The trailer is equipped with dual tandem wheels to facilitate traveling over uneven terrain. The four tires are 6.00 by 16 in size, and a heat shield is provided to protect them. The trailer has torsion-spring axles and Timken bearing hubs. Built into the trailer is a 170-gal. fuel tank.

The unit can be towed by any light tractor, or if desired, the burner unit can be removed from the trailer and used on a push car or other vechicle.



The Onan air-cooled Diesel-electric plant

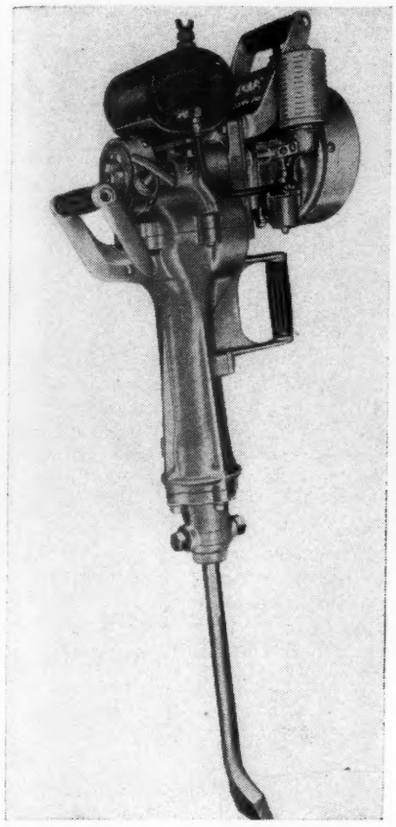
Unit Tie Tamper

13 A self-contained tie tamper has been developed by the Racine Tool & Machine Co., Racine, Wis. The new tool, known as the Racine Unit Tie Tamper, is powered by a 1¼-hp., single-cylinder, two-cycle, air-cooled magneto-ignition gasoline engine.

Incorporated in the tamper is a hammer principal involving a novel spring and crank assembly which is said to develop a high-velocity hammer blow. A sling-shot-like action of the hammer is obtained by using springs as the connecting means instead of a direct connecting rod between the hammer and crankshaft. Approximately 1,500 hammer blows per minute are imparted to the tamping tool. The spring-driving principal used is said to eliminate transmission of shock to the crankshaft, engine and operator.

The machine is started through magneto ignition by a cable-type, self-winding starter. Gas fumes are said to be exhausted from the engine without entering the operating mechanism or contaminating the lubrication of the machine.

The machine has a nose piece designed to permit oscillation of the tamping bar.



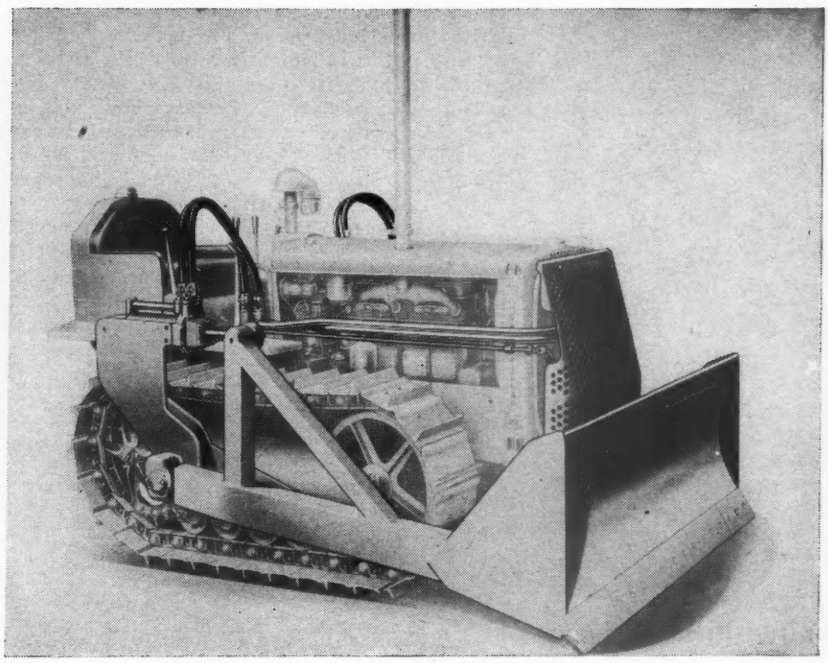
The Racine unit tie tamper

This motion of the tool creates a stirring action that is combined with the hammer blow. It has a six-position tool holder, in which can be mounted various tools in any position. The tools can be quickly removed by loosening two cap screws on the tool holder. Including a regulation 20-in. tamping tool, this tamper is said to weigh just over 50 lb.

Small Bulldozers

14 Two new hydraulically-controlled bulldozers, designed for use with the manufacturer's smallest crawler-type tractor, the Caterpillar Diesel D2, have been announced by the Caterpillar Tractor Company, Peoria, Ill. These small bulldozers—No. 2A with an angling blade, and No. 2S with a straight blade, are said to be effective for many railroad off track maintenance and construction jobs, such as snow removal and refuse handling, backfilling at bridges and culverts and earth moving in "tight" places.

The new units are said to have the advantages of a highly-efficient closed hydraulic system, with front-mounted, positive action, balanced vane-type pump, integral with tank and operating valves; a manually-operated control valve with "raise", "lower" and "hold" positions; carburized pins for connecting pistons, cranks and push arms; high-pressure, reinforced hydraulic hose; and seamless steel lines coupled to the hydraulic hose to direct oil flow from the hydraulic pump housing to the power cylinders.



The "Caterpillar" Diesel D2 tractor with No. 2S hydraulic bulldozer

The No. 2A bulldozer has a blade length of 80 in. for the 40-in. gage D2 tractor and 97½ in. for the 50-in. gage tractor. It has a maximum lift, with blade straight, of 28 in. When the blade is angled but not tilted, the lift at the leading point of the blade is 32½ in. for the 40- in. gage unit and 34 in. for the 50-in. gage tractor. It has an 11-in. drop below the ground, a blade angle of 25 deg. and a maximum tilting adjustment of 6 in.

The No. 2S bulldozer, offered also for both D2 tractors, has a blade length of 68 in. for the former and 80 in. for the latter. It has a maximum lift of 25 in. and a drop below the ground level of 10 in.

Lightweight Jacks

15 Two new models of lightweight lifting jacks have been introduced by the Buda Company, Harvey, Ill. These are known as the Buda Model 225-A Klinch-Klaw jack and the Buda Model 2510-A journal jack.

The Buda Klinch-Klaw Jack is a ratchet, trip-type jack especially designed for pulling all types of bolts and spikes on railroad trestles and bridge work. The Model 225-A is identical to its predecessor, the Model 115, except that it has an aluminum-alloy frame, with consequent reduction in weight. Because the rack bar of this jack can be lowered below the base of the jack, it can grasp and pull bolts located 20 in. below the resting surface of the jack. It is said that this jack can be used to pull bolts in narrow places between beams, underneath trestles, and from the sides of beams. It

The Buda Model 225-A Klinch-Klaw jack pulling a bolt

Buda Model 2510-A journal jack

can also be used for leveling track and general lifting purposes.

The inside of the claw of the jack is ribbed and slightly tapered. By using a tapered pin wedge, it will tightly grip headless bolts and rods. For pulling out headed bolts and spikes, a bolt-puller attachment is used with the claw. Its capacity is 15 tons.

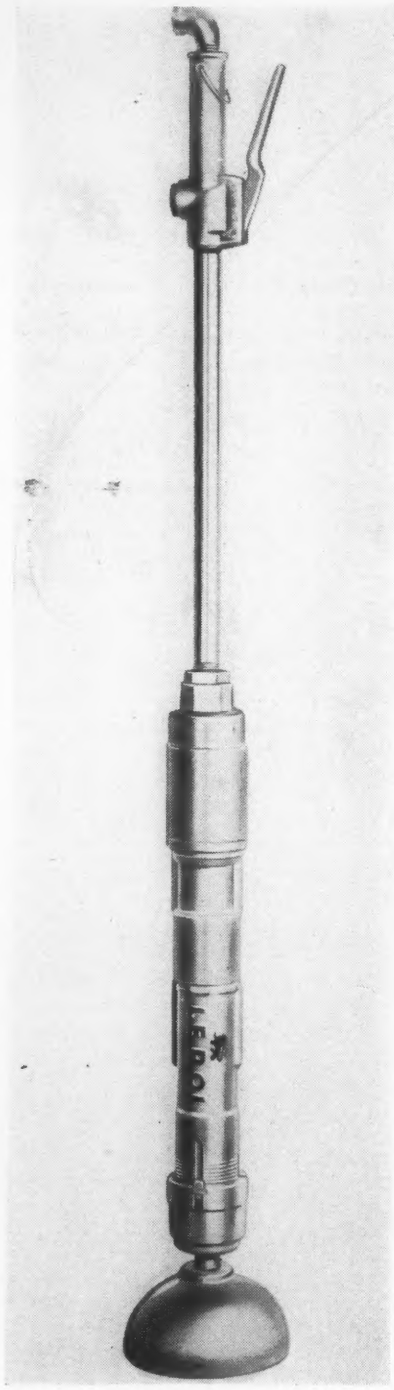
The model 2510-A Journal Jack has an aluminum-alloy shell for light weight, and is said to be ideal for working in small areas, confined spaces, and where heights are limited. Due to a safety retarding spring in this jack, all creeping and accidental lowering of the load are said to be prevented. For this reason it is said that these jacks can be used to support structural columns during construction and for shoring work. For accurate control of the load they have a free-acting, ball-bearing screw action which enables them to raise a load any desired amount, however small, within the limits of the rise of the jacks. The Model 2510-A jack has a capacity of 25 tons and weighs 28 lb. Its closed height is 10 in. and it can lift a load 5½ in.

Backfill Tamper

16 The LeRoi Company, Milwaukee, Wis. has announced a new air-operated tool for tamping material placed in fills, which is known as the LeRoi No. 11 Backfill Tamper. The new tool incorporates several new features said to provide easier holding, faster tamping and longer service life. It is said to deliver an impact blow scientifically developed for proper compaction of fill materials.

Essentially the tool consists of an air cylinder with piston which operates the tamping butt; a throttle valve which connects to the air supply; and a length of air pipe between the cylinder and throttle valve which serves as a handle.

In this tool, the backhead, cylinder, piston and throttle lever are constructed of high-strength drop forgings. A new metal-foil packing is said to prevent the piston stem from scuffing. The wiper construction in the front bumper retainer is said to keep harmful foreign matter out of the machine. The valves are designed to prevent air leakage, thereby reducing the air consumption of the tool. When the tool is in operation, the new exhaust construction is said not only to prevent freezing but also to reduce noise. The tool is easy to assemble, disassemble and inspect, it is claimed. It has a 1½-in. bore, a 7-in. stroke, is 47½-in. long, overall and weighs 34 lb.

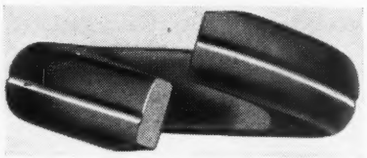


The LeRoi No. 11 backfill tamper

Spring Washer

17 The Eaton Manufacturing Company, Reliance Division, Massillon, Ohio, has made a new addition to its widely-diversified line of Hy-Crome Spring Washers for use in the railroad field. Known as the Xtra-Hy Hy-Crome Spring Washer, the new product has been developed to meet a specific need existing at this time.

Due to substantial increases in train speeds and wheel loads, many railroads have found it necessary in recent years to use track devices designed to give service in excess of that formerly required, and spring washers used on track bolts have been no exception in this regard. A new tentative specification for track-bolt spring washers, calling for greater physical values, was recently approved by a subcommittee of the Committee on Rail of the American Railway Engineering Association.

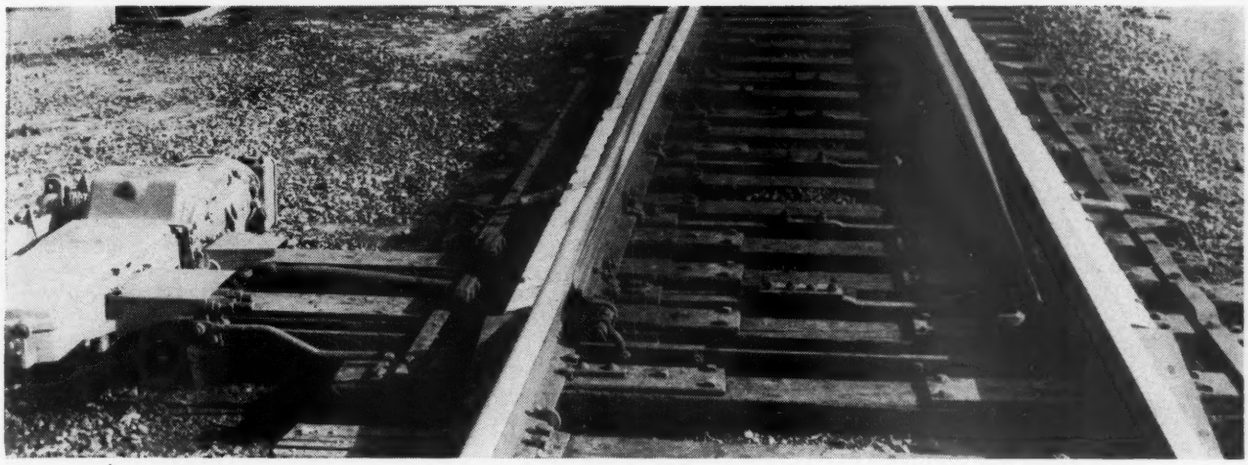


Reliance Xtra-Hy Hy-Crome spring washer

Experiments were conducted by the Reliance Division of the Eaton Manufacturing Company to develop a product that would not only conform to the requirements of the tentative specification, but which would accomplish this without the necessity for increasing the bolt length over that which the railroads are now using. Another objective was to provide in the new device a spring washer which would properly fit the angle bar. The Xtra-Hy Hy-Crome Washer, illustrated herewith, is designed to satisfy these various requirements.

Electronic Igniter for Switch Heaters

18 The Rails Company, New Haven, Conn., has recently developed an electronic remote-control apparatus for igniting, keeping lit, and turning off the gas or propane switch heaters manufactured by this company, which are known as "Rail-Tel" and "Gas-Trac" heaters. Ignition of the gas at the switch heater is obtained by means of spark



An installation of a "Rail-Tel" switch heater, equipped with an electronic igniter, at a main-line high-speed turnout. Four conductors, two on each side of the track, lead to spark plugs directly below gas connection

plugs, one of which is attached to each burner section.

The electronic igniter embodies four or six automotive-type ignition coils, one for each burner section in the switch heater; a solenoid valve, for opening and closing the gas supply line; and an electronic timing device. These units are enclosed in a metal box which can be placed in a convenient location near the switch heater, such as an instrument house. A coaxial cable carries high voltage current from the ignition coils to the spark plugs. The spark plugs in each heating section are located immediately adjacent to the inspirator in such a manner that the spark gap is directly in the path of the gas mixture as it leaves the inspirator. As the spark occurs, the gas mixture becomes ignited. The unit operates on 110-volt or 200-volt alternating or direct current.

The igniter units are controlled by a switch which may be located at the nearest tower, telegraph operator's or dispatcher's office, regardless of its distance from the switch heater. Where the installation is to be made in C.T.C. territory, the switch may be located on the control panel of the C.T.C. machine. By closing the switch, a coded current is sent through a circuit provided in the C.T.C. line wires, and actuates a relay in the instrument house adjacent to the switch. The relay turns the power supply into the igniter box, thus actuating the electronic circuit. The electronic circuit then opens the solenoid valve, turning the gas supply into the heaters, and causes the ignition coils to transmit to the spark plugs at any desired interval. This sparking action continues until the control switch is turned off, thus insuring that the heaters will be re-lit should they blow out for any reason.

The electronic igniter is adaptable for use at larger installations where a number of switch heaters are in service. In this case, the timing device can be combined with a selector so that sparking takes place at each switch in turn until all are sparked.

Small Compressor

19 After extensive service applications, including thorough test on a number of roads throughout the country during the past year, the Ingersoll-Rand Company, New York is now manufacturing for general use on the railroads a new small portable compressor known as the Spot-Air. Designated No. 3-R-30, this compressor is a compact unit, weighing only 200 lb., and is designed for a wide range of applications in track, bridge and building work. With a rated capacity of 30 c.f.m., the Spot-Air is capable of operating two tamping guns, and thus is designed essentially for section gang use in spot tamping work. However, used in multiple, it is equally adapted to extra-gang, out-of-face surfacing. At the same time, the new unit is suitable for operating other pneumatic tools employed in track work, such as tie-boring drills, and impact wrenches for tightening joint tools and putting down lag screws, and has many ap-

Demonstrating how the wheelbarrow carrier is used to move the Spot-Air along the roadbed shoulder while the tie-tamping work continues without interruption

Showing the Spot-Air compressor being used to operate a drill for boring ties

plications in bridge and building work, including the operation of riveting, scaling and chipping tools, as well as of impact wrenches, power hand saws and paint-spraying equipment.

The compressor is operated by a three-cylinder, four-cycle radial gasoline engine. The cylinders of the engine lie in a horizontal plane and are spaced at intervals of 120 deg. about a vertical crank shaft. Alternately spaced between the power cylinders, and in the same plane with them, are three compressor cylinders. The connecting rods of both the power and the compressor cylinder are connected to the crank shaft in an articulated arrangement with one master rod and five link rods, thus permitting the use of a single-throw crank shaft, supported by tapered roller bearings. The flywheel of the unit is of cast aluminum with fan blades instead of spokes for cooling the engine and compressor.

The engine and compressor are lubricated by a force-feed system, thereby eliminating the need of adding lubricants to the fuel. A patented feature permits the use of a single oil-bath air filter for both the power cylinders and the compressor cylinders. The exhaust manifold from the compressor cylinders serves as a combination manifold and aftercooler. The unit produces its rated 30 cu. ft. of air per minute at a working pressure of 80 p.s.i. The fuel tank has a capacity for two hours' continuous operation.

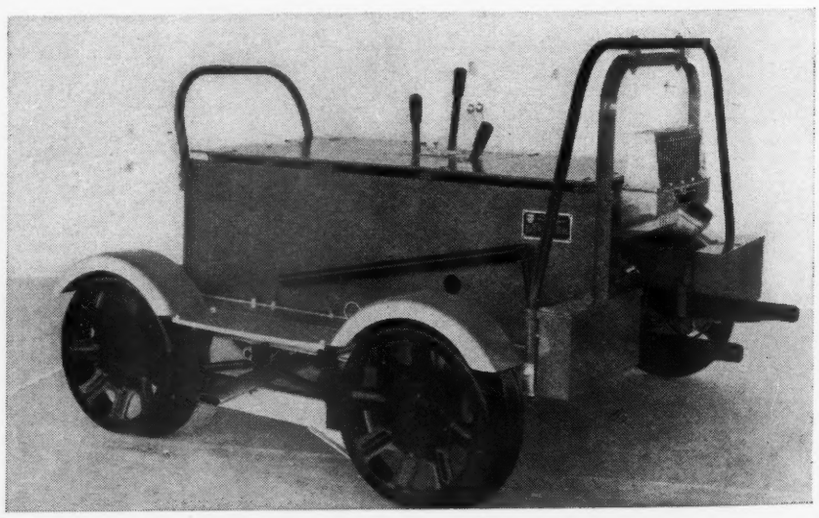
The Spot-Air is mounted on a circular steel plate 20 in. in diameter and its overall height is 27 in., thus permitting it to be placed in the inter-track space without interfering with traffic. It can be lifted readily by two men using a bar inserted through a collar in the frame of the machine, but a detachable wheelbarrow-type carrier, with hooks to engage the lifting bar, may be obtained as an accessory. With this carrier, the unit may be moved from point to point, as required, by one man lifting only 40 lb. on the handles of the carrier. The compressor unit may be carried to and from work on the tool tray of a standard section car, or on a trailer.

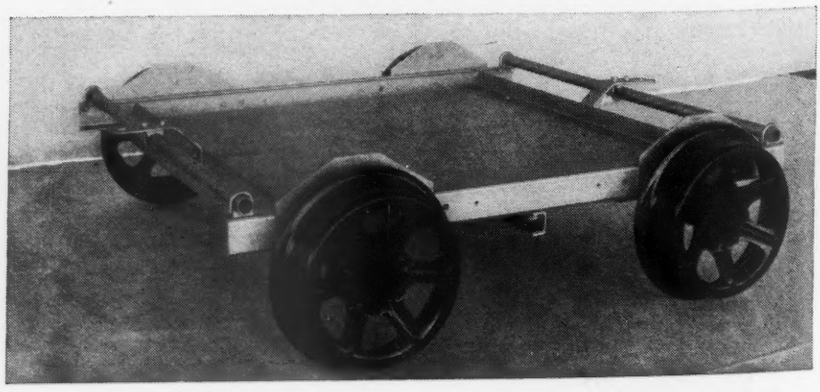
Fairmont Products

20 A new one-to-four-man inspection car, known as the MR19 Series A, and a new and improved line of both lightweight and standard push cars and trailers, are now being produced by Fairmont Railway Motors, Inc., Fairmont, Minn.

The new motor car, outwardly similar to a standard car, has a two-way drive that permits the car to be driven either forward or backward without reversing the engine. The direction of travel is changed by releasing one belt lever, braking the car to a near stop, and then engaging the other belt lever. It is reported that the car need not be brought to a full stop before changing direction, and, since there are no sliding gears to be matched before shifting, accidental engagement of both levers at the same time will not harm the drive.

This car also has two speeds in either the forward or backward direction. The standard drive provides for the normal speed and pulling power, while the second speed is reported to give 30 per cent more pulling power with a corresponding reduction in top speed. The forward drive is a conventional direct-belt drive from engine to anxle with an idler pulley. The reverse drive is also an endless cord belt drive with an idler





Above—The Fairmont MR19-A inspection car with two-way drive. Below—This lightweight trailer has a capacity of 1,000 lb.

pulley, but the final drive is through a set of enclosed gears mounted on the drive axle.

The Trailers

The new line of trailers consists of eight different models ranging in capacity from 1,000 lb. to 10,000 lb. Two models are in the lightweight class for use with inspection cars and lightweight section cars. Both models have aluminum alloy frames, tapered roller bearings and one differential axle. The smaller one, with a capacity of 1,000 lb., weighs 280 lb., while the larger one, of 2,000-lb. capacity weighs 380 lb. Both models can be equipped with four-wheel brakes.

There are six models of standard trailers in three different axle sizes. Of the two in each axle size, one model has a white-oak frame and the other a structural-steel frame. These models have capacities ranging from 6,000 lb. to 10,000 lb.

All of them have deck sides and deck ends reinforced with steel angles, four insulated 16-in. demountable wheels, one differential axle, and a steel-tubing lift pipe at each end.

Available as extras are full-length rail skids, detachable seat and steps, couplers, and four-wheel brakes with the brake-lever socket located under the edge of the deck to protect it when material is unloaded off the side of the trailer. The brake lever in each trailer is detachable and a carrier for the lever is located under the deck of the trailer.

Rail Drill

21 The Nordberg Manufacturing Company, Milwaukee, Wis. has developed a new rail drill, known as the Model CD. The new drill has bearings, and is powered by a 1½-hp. air-cooled gasoline engine. When in operation no part of the machine rests on the ties, and a level position is maintained by a stabilizing bar which rests on the opposite rail. The entire unit weighs only 132 lb.

The drill bit is pawl driven and it is said that it cannot be fed beyond the capacity of the motor, thereby preventing undue strain on parts and bit. Overload release is accompanied by means of a spring and a flexible coupling which cause the pawls to be lifted from the chuck ratchet when the strain becomes excessive. The drill is fed by a hand ratchet incorporating a high-speed crank for moving the fork into the holding position against the rail and a ratchet-feed handle for controlling the speed of the bit.

The chuck for holding the bit consists of the halves of a tapered cylinder with a groove along the inside surfaces fitting the bead on either side of a flat drill bit. The chuck halves have four holes for insertion of a pin against which the end of the bit is butted. As the bit wears, the pin is moved forward to the next hole.

Adjustment of the drill to the position of holes to be drilled is obtained by turning a wing nut, and locking in final position is accomplished by means of a lever. Because the Model CD rail drill has a wide spread between the drill bit and the holding fork, it can be used for drilling at heel blocks of switches and for drilling guard rails in place.

The Nordberg Model CD rail drill in operation

Insulated Pipe Units

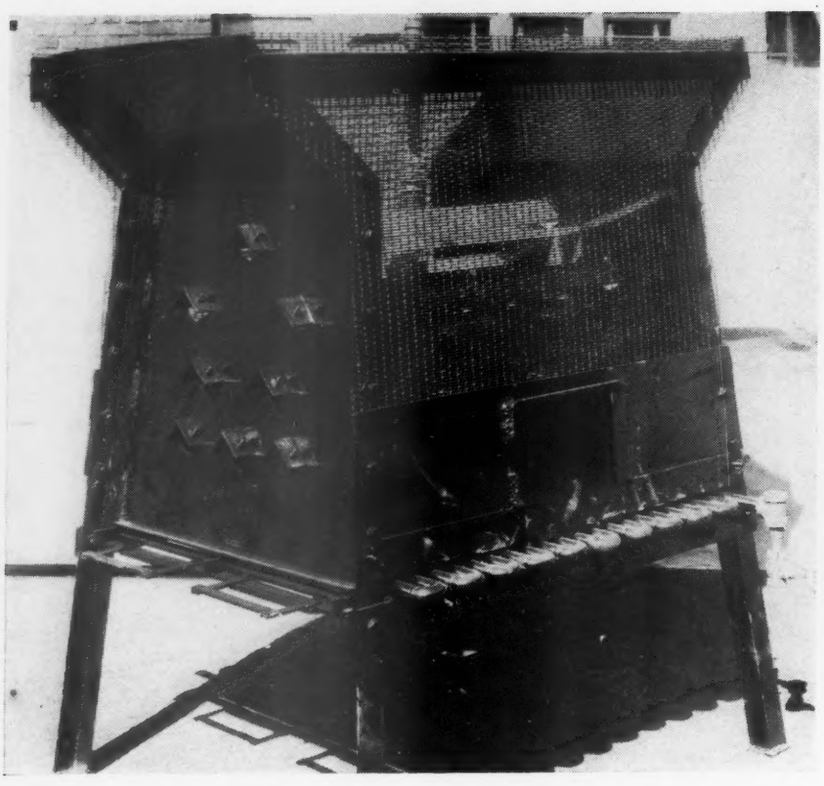
22 The Ric-Will Company, Cleveland, Ohio, has recently introduced into the railroad field the Ric-Will insulated pipe units for housing underground, surface or overhead distribution systems for steam, hot water, oil or other products that require insulation to prevent heat loss. Fabricated in standard 21-ft. lengths, the units house the pipes and insulation in a 16-gage, helically-corrugated, galvanized-iron Helcor conduit of welded construction, which is covered by a heavy coating of high-temperature asphalt and a tension wrapping of asphalt-saturated asbestos felt to seal against moisture. The strength of the Helcor conduit is said to permit installations underground in narrow, shallow trenches under or near railroad tracks, with consequent savings in excavation and backfill.

The ends of each unit, with heavy iron collars welded to the ends of the Helcor conduit, are sealed with a heavy ring of insulating cement and made watertight by treated asbestos calking and a special waterproof cement. Ric-Wil insulated pipe units can be furnished with cast-iron conduit instead of Helcor conduit to meet special conditions.

Ric-Wil insulated pipe units being installed in a shallow trench along a track

Steam Sand Dryer

23 The Ross and White Co., Chicago, has developed a small steam sand drying unit for furnishing dry sand at locations where a large capacity is not required. It consists essentially of an open-top, box-like structure lined with steam coils on the sides and bottom, and supported on four legs. Two of the sides are enclosed by open wire netting to permit quick escape of vaporized moisture. The wet sand is placed in the unit through the open top. As the sand dries by the heat of the steam pipes it passes out through the openings between the bottom steam pipe



The Ross and White small capacity steam sand drying unit

coils onto the floor or into a receptacle. The unit is equipped with movable grates at the bottom to prevent any gravel from falling through with the sand. To clean out the accumulated gravel, the grates can be moved to provide a larger opening.

Using this unit an automatic sand-drying operation can be accomplished. If it is placed under an opening in an overhead green-sand storage bin, arrangement can be made to have the wet sand run into the top of the dryer, passing through it into a receptacle from which the dry sand can be forced by air pressure into the sand plant. Wet sand, of course, can also be shoveled by hand into the dryer. It is said that the unit has a drying capacity of approximately six tons in 24 hs.

Welding Torches

24 The availability of a new oxyacetylene welding torch, designated the Airco 800, has been announced by the Air Reduction Sales Company, New York. Although the new torch has a conventional weight of 1½ lb. and is only 11½-in. long, it is reported to be suitable for almost any welding job because it has capacity for operating single-flame welding tips from No. 0 to 13, inclusive, and multiflame tips up to No. 15.

The torch head of the new Airco 800 is made of Monel metal whose durable qualities are said to make possible a fewer number of head replacements, and also lower maintenance costs, since reseating is rarely, if ever, required Complete welding tip assemblies are available in sizes 0 to 10. Each welding tip is assembled with an individual mixer drilled for that particular size tip, thus, it is said, assuring better control and results.

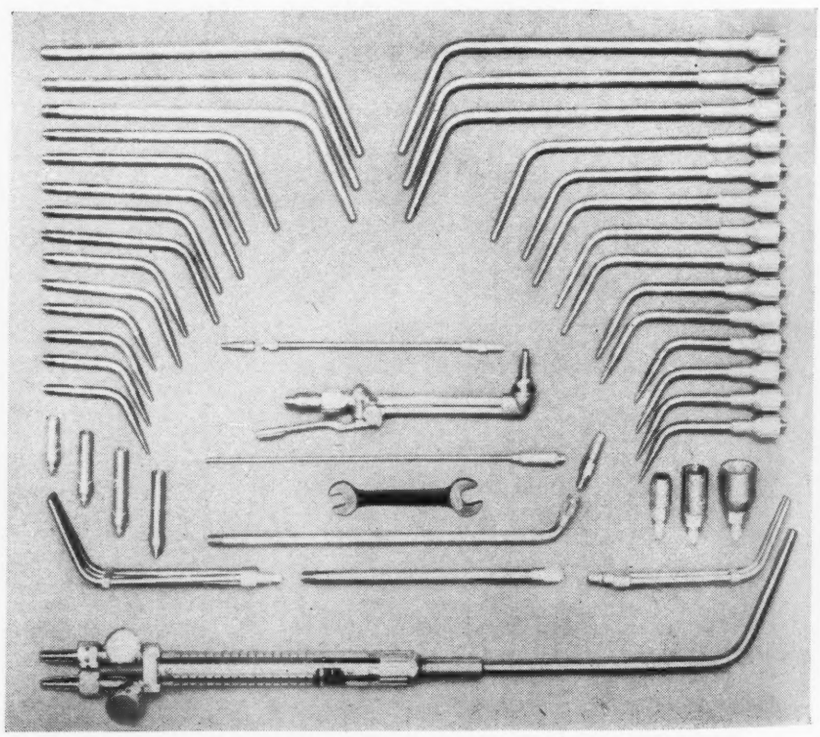
In addition to the "800", this manufacturer is also offering a smaller version known as the Airco 700. This torch is constructed along the same lines as the "800", and is reported to have the same advantages, including the complete welding-tip assemblies. Attachments that use Airco's present line of cutting tips are available.

Soil Compactor

25 The Electric Tamper & Equipment Co., Ludington, Mich., has developed a new machine, the Jackson Model L Soil Compactor, which is designed for use in compacting granular soils. It is a vibratory machine which operates on the principle that any type of granular soil, such as sand or gravel, when placed loose in fills will undergo settlement when subjected to vibration. The machine is used to compact sand or gravel backfills at bridges and culverts and to compact the sub-bases beneath shop floors and concrete paving.

Essentially the unit consists of a vibratory motor mounted in a metal frame. When used for compacting granular materials, the frame has a corrugated base. By substituting a smooth base, the machine can be used for compacting and smoothing asphalt-type paving mixtures at highway crossings and station platforms. When equipped with a specially-designed base, it is said that the compactor is effective in reducing the voids in coarse gravel and crushed rock.

The compactor is operated by a three-phase, 60-cycle, 110-volt induction motor



The Airco "800" torch and the tools that can be used with it

of the squirrel-cage type. When in operation, it propels itself at a speed of 5 to 6 ft. per min., guided by the operator. With this unit, it is said that 10 to 15 sq. ft. of area may be compacted per minute to a depth of 12 in. The machine is portable, weighing 150 lb.

The power plant usually furnished to operate the compactor is the Electric Tamper & Equipment Co.'s. Model M-2, the same plant used to operate four tie tampers. It is capable of operating four Model L Soil Compactors simultaneously, and may also be used to operate power tools.

The Jackson Model L vibratory soil compactor in operation at a bridge backfill

New Ozalid Printer

26 A new printing machine, known as the Ozalid Streamliner, for the reproduction of typed, drawn, printed and photographic work, has been announced by the Ozalid Division of the General Aniline & Film Corp., Johnson City, N.Y. Although this type of printing machine has been considered as designed only for drafting room reproduction needs, it is now being recommended for the economical copying of many kinds of general-office material as well, such as letters, forms, reports, instruction manuals, etc. The one requirement for this kind of copying is that the original must be of a translucent material.

Essentially the Streamliner is a machine which automatically exposes a sheet of sensitized material (paper, cloth, foil or film) covered by the original to the light of a mercury-vapor lamp. After exposure to the light the sensitized material is developed by ammonia vapor in a dry developer. The result is an exact duplication of the original with lines reproduced in any of five different colors, black, blue, red, yellow or sepia, depending on which type of sensitized material is used. Positive prints from photographic film negatives can also be made.

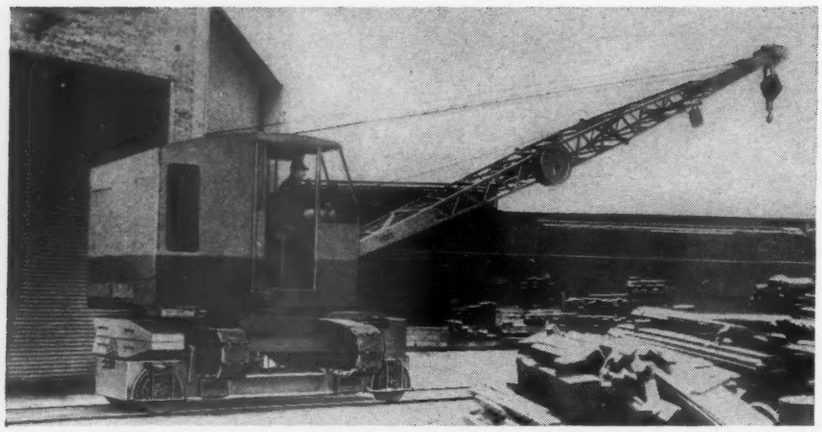
The Streamliner has a body constructed of aluminum and steel with a gray, hammerloid finish. All moving parts are driven by a 1/3-hp., 220-volt, a-c. motor. The machine occupies less than 11 sq. ft. of floor space, and can, it is said, be operated by a novice.

The Ozalid Streamliner printing machine

Carrier Car for Crawler Crane

27 The Koehring Company, Milwaukee, Wis., has developed a carrier car for mounting the Koehring Model 205 Crane, which permits this crawler crane to be operated on the track under power supplied by the crane's engine.

Known as the Koehring 205 Karkrane the new carrying car has a frame of the well type, which is suspended between two pairs of flanged wheels. The wheels at one end are provided with a gear mechanism, including a universal joint, for the transmission of power from a pinion on the crane to the wheels of the car. By this means the car can be propelled at any speed up to 12 m.p.h. The opposite end of the car is provided with a storage space. A suitable lifting bail is provided on the carrier car by means of which it can be lifted to or from the track by the crane.



The Koehring Model 205 crawler crane mounted on the carrier car. The ramps at the left end of the car are used for transferring the crane to and from the car

The handling of the cane to and from the car is accomplished with the aid of two ramps that are carried as standard equipment in the storage space. A period of eight minutes is said to be sufficient for setting the car on the track and mounting the crane for on-track work, and a similar period for the reverse operation. When in position on the car the crane is at an angle of 90 deg. with the track, and suitable means are provided for locking it securely in that position.

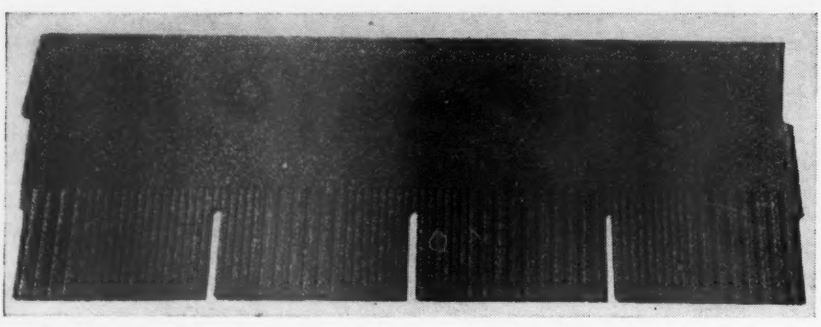
It is said that the carrier-car-mounted crane can be used for all work for which both on and off-track cranes are adaptable, including the unloading of rail and other material, laying rail, ditching, handling timbers on bridge-repair projects, loading scrap, and many others.

Asphalt Shingle

28 A new, heavy-duty addition to the Mule-Hide line of asphalt shingles has been introduced by the Lehon Company, Chicago. The new shingle, a four-unit strip known as the Town and Country, is said to incorporate new features designed to reduce maintenance and replacement costs by offering increased roof protection and wind resistance.

The new shingle has been designed to provide triple thickness at all exposed tabs. To give greater wind resistance the weather exposure has been shortened to 3⅞ in., thereby decreasing the exposed area and, it is said, permitting more effective nailing, since the nails can be placed closer to the butt of the shingle.

The Town and Country, available in four different colors, weighs 290 lb. per square, the heaviest Mule-Hide strip shingle manufactured. It has the tapered featured of thick-butt shingles and has the Cor-Du-Roy construction.



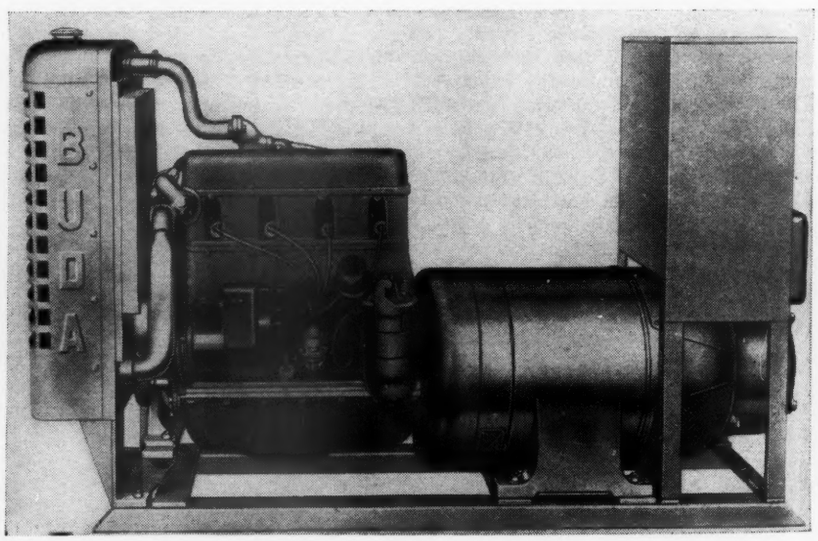
The new Town and Country asphalt shingle

Generator Sets

29 The Buda Company, Harvey, Ill., is now producing a new line of gasoline-powered electric generator sets, designed for continuous or stand-by service in meeting the needs for auxiliary power in a variety of construction and industrial applications. The line includes 23 sizes and models ranging from 10 kw. to 125 kw. It also includes both alternating-current and direct-current generators for single-phase or three-phase current. Each set is a complete unit and is fully equipped with generator, engine, radiator, and engine controls.

Four-cylinder engines are provided with the smaller units, while those in the larger models have six cylinders. The engines are water cooled and are lubricated by a circulating pressure system. If desired, natural-gas or butane engines may be substituted for the gasoline engine in any unit in the line.

The generators are connected directly to the engines, are of the single-ball-bearing, heavy-duty, drip-proof type, said to conform to standards of the American Institute of Electrical Engineers and the National Electric Manufacturers' Association. A control panel is provided with each unit complete with voltmeter, ammeter, circuit breaker, rheostat and engine controls.



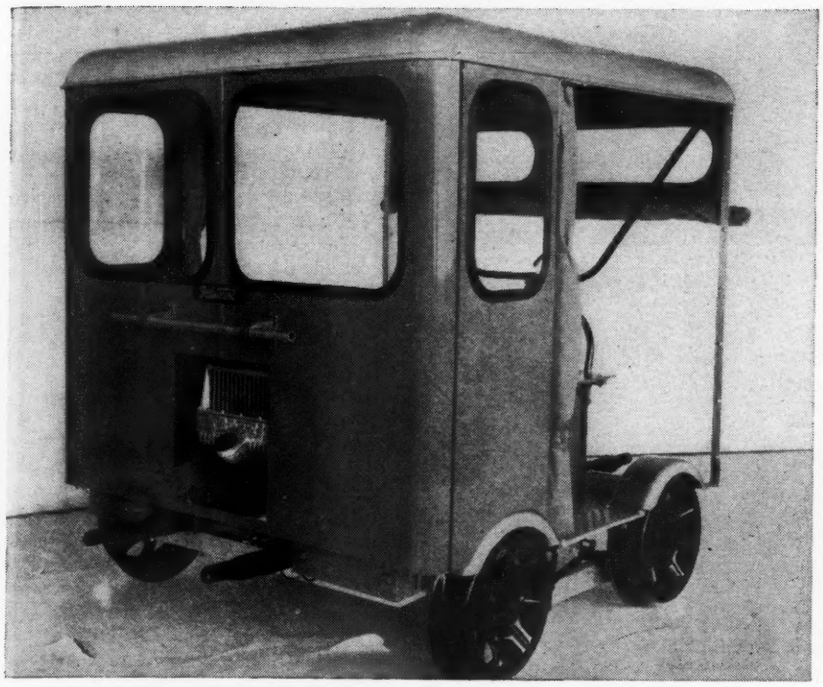
One of the new line of Buda gasoline-electric generator sets

Motor-Car Cabs and Windshields

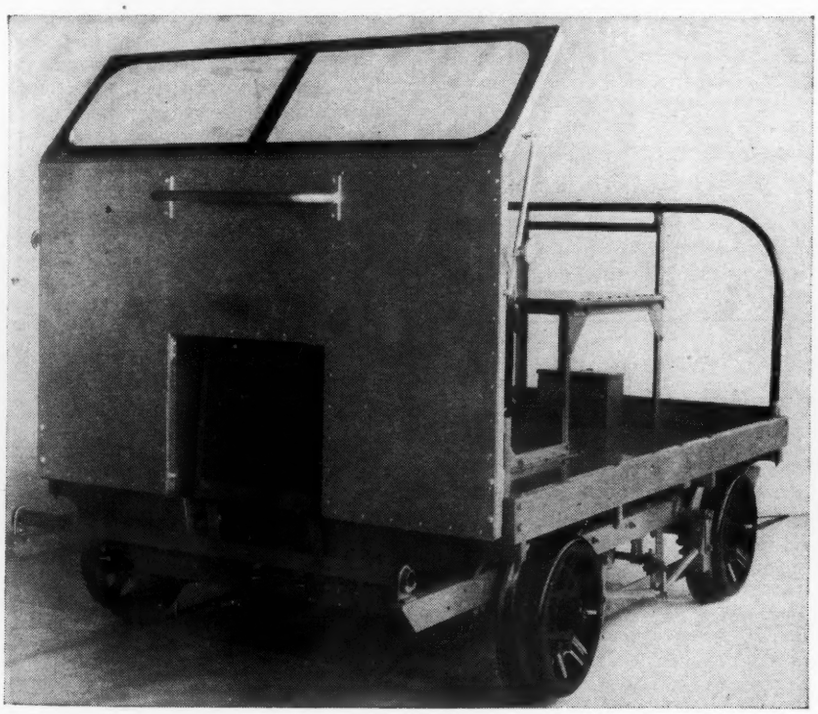
30 Fairmont Railway Motors, Inc., Fairmont, Minn., has developed two improved products for the protection of motor-car operators—an aluminum cab and an aluminum windshield.

Details of the Cab

The cab, reported to be durable as well as light in weight, is designed for use on Fairmont M9 and M19 inspection motor cars. Because it ex-



Above—The Fairmont aluminum cab top for M9 and M19 inspection cars. Below— Motor car fitted with new aluminum windshield



tends over the wheel guards and has side panels, the operator is said to be well protected. Aluminum alloy is used for the framework, front and side sheets, and the top of the cab. It has safety-glass and side windows, large in size for good visibility. The windows are rubber mounted to cushion the glass and seal the joints. The rear support of the cab is said to be flexible enough so that distortion of the car frame at curves, set-offs, etc., will not strain the cab proper. Available for use with these cabs are sliding side curtains and also a rear window section with curtain.

The Windshields

The newly-developed windshields are also said to be durable as well as light in weight. In these units sheet aluminum is riveted to a framework of welded aluminum alloy. They are each made in two sections which are joined by a continuous hinge covered with weather stripping to prevent any leakage at the joint. The upper section can be set in a vertical position or tilted either forward or backward, and is held in any position by a telescoping brace having a hand lock screw. This section is fitted with panels of ¼-in. Safety plate glass mounted in rubber.

All screws, bolts and nuts used in the windshields proper are rust-proofed. These windshields are standardized in three basic models, one for inspection cars, another for section cars, and the other for gang cars. The one for inspection cars is 51 in. wide and has two window openings, each 13¾ in. by 22¼ in. Those for section and gang cars are 60¾ in. wide and have two windows, each 13¾ in. by 27¼ in. All of them have a hand rail in front.

Joint Bar Filler

31 A new mastic material, known as No-Ox-Id Joint Bar Filler, to seal the opening at the ends of joint bars for protection against brine, dirt and abrasive materials stirred up by the passage of high-speed trains, has been developed by the Dearborn Chemical Company, Chicago.

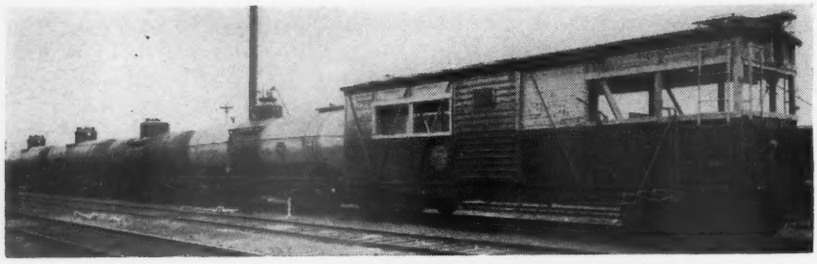
This product, having a consistency similar to that of putty, is applied by

No-Ox-Id Joint Bar Filler is applied at the end of a joint bar

a paddle or putty knife to the ends of the joint bars after the joint is permanently assembled. It hardens with age, but is said to retain resilience and not become brittle. It is a compound formulated from No-Ox-Id, a rust preventive and lubricant manufactured by this company, which is applied to the rail ends and the fishing surface of rail heads before the joint bars are applied.

More Potent Weed Killer

32 The Weed Killer department of the General Chemical Division, Allied Chemical & Dye Corp., is introducing into the railroad field, in conjunction with its long-established application service, an improved weed killer, known as General



View of the equipment used by the General Chemical Company's Weed Killer Division in applying Formula No. 7

Chemical Weed Killer—Formula No. 7. This new weed destroyer is harmless to man and animals, but is said to be toxic to the extent of complete kill to practically all noxious vegetation which commonly infests the roadbed and track structure, including Bermuda, Johnson, kedge, bunch and cyperus spur grasses, and such weeds as horse-nettles, iron weed, dogbane, milkweed, trumpet vine, Spanish needle and pigweed.

The new killer is a compound of very low volatile petroleum aromatic oils containing polychloracetyl constituents equivalent to not less than 5 per cent trichloracetic acid, plus 10 per cent acid arsenical supplement 7A. Mixed with water in the proportion of 1 to 3, the resulting solution is sprayed on the vegetation at the rate of 6 to 10 gal. of concentrate per mile strip of track or roadway 1 ft. wide. Normally, the lighter dosage is used within the tie area, while the heavier is applied to the ballast shoulder and toepath. The killing action of the chemical involves both the contact and translocating principles of attack — the former breaking up the surfaces of the plant and the latter passing the chemical down into the root structure.

One of the most conclusive tests that have been made with the new formula was conducted in the Everglades area of Florida, where a lush growth of southern perennial grasses was encountered, including Bermuda grass, giant Para grass and maiden cane 6 to 14 ft. high. Here, in spite of unusually wet conditions that existed as the result of the September, 1947, hurricane and high water in the area, investigation six weeks after treatment is said to have disclosed highly effective results, all ordinary weeds and grasses having been killed outright, including their root systems. Even Bermuda grass, in all stages of density and height, is said to have been killed 100 per cent.

Two woody vines—wild grape and gopher apple—with enormous root systems extending inside and outside the rails, were said to have been completely top killed, and to a depth of 2 to 8 in. below the surface, but did show some tendency to resprout from below after six weeks. The same condition, it is said, was found with respect to the patches of Johnson grass treated, but in all cases the infestation, it is claimed, was reduced in size, vigor and density. That the kill of these particular plants was not more effective is attributed to the saturated soil conditions at the time of the chemical application.

Application of Formula No. 7 is made by the Weed Killer department of General Chemical with its own chemical spraying equipment, which is generally operated over the track at the rate of 12 m.p.h. As operated, the equipment employs three tank cars (one for water, one for Formula No. 7 and one for supplement 7A) and a special spray car. The two chemical concentrates are transferred by air pressure to the spray car where they are automatically and continuously mixed with water from the water car through a triple proportioning unit. From this unit, which provides for readily changing the proportion or quantity of mix according to the character or amount of weed growth encountered, the liquid is sprayed on the track and shoulder, as desired, through a series of spray nozzles.

Small Sand Plant

33 The T. W. Snow Construction Company, Chicago, has recently developed a new sanding plant of small capacity designed especially for use in yards to service Diesel switching locomotives. Complete in every respect, except for an air supply and a sand dryer, this unit consists essentially of a sand-storage tank, with a capacity of two or three tons, mounted on a steel tower. It is shipped in two sections, with the lower or base section serving as a sand-elevating drum from which dry sand is forced by air pressure up into the storage tank. The sand drum is equipped with a fill inlet, with cap, through which sand is poured by hand, and an air hose which can be connected to any air source, including the air line on a switch engine.

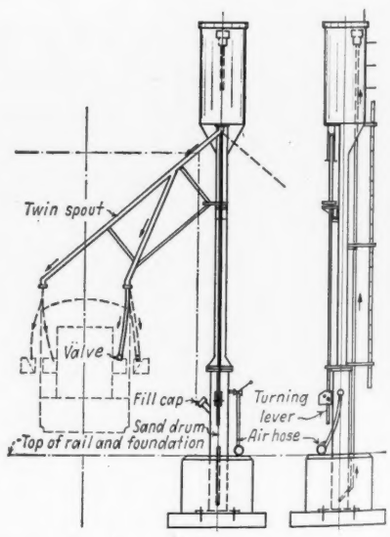
The sand flows by gravity from the overhead storage tank through a twin-spout arrangement, which makes it possible to fill the sand pockets on each side of an engine simultaneously. Each spout is equipped with a hose pendant, fitted at its outlet end with a specially-designed sand valve, said to give the operator instant control of the sand flow. The spout bracket can be swung forward or backward from its non-operating position parallel with the track, and can thus serve engines on two different tracks. The movements of the spout are controlled from the ground by means of an extension shaft and lever, and no cables, chains, counterweights or sheaves are used.

Wire-Rope Slings

34 The American Chain & Cable Co., Wilkes-Barre, Pa., has been carrying out a program in the development and perfection of wire-rope slings. In connection with this program, it was determined that a means must be found for making loop ends which would not weaken the wire rope. The Acco-Loc Safety Splice was the result. Laboratory tests, it is said, showed that this splice is stronger than the rope. As used on Acco's Strand-Laid and Cable-Laid Slings this splice has two swaged collars which are said to eliminate bulk and permit close snubbing. One of the collars completely encloses the wire ends and removes the danger of protruding wires injuring workers or snagging their clothing.

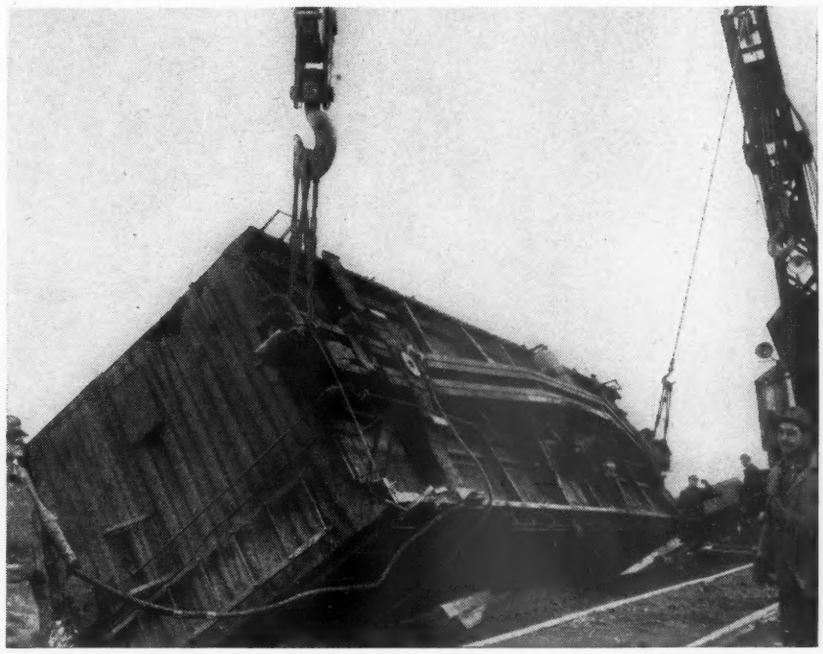
The perfection of the Acco-Loc Safety Splice has been a factor in this company's production of a new line of wire-rope slings in certain diameters and various lengths. Known as Strand-Laid and Cable-Laid Slings, they are stocked at the factory, in district warehouses and in local supply houses to bring the slings close to the job and to make them immediately available. The slings have warranted safety factors and definite rated capacities.

An advantage claimed for factory-



Two elevations of the small sand plant, showing the twin-spout arrangement

stocked slings is that an assortment of sling legs and fittings can be carried to provide the exact sling for lifts as they come. It is said that these interchangeable stock slings and specially-designed fittings will handle about 90 per cent of routine sling lifts.



Two Acco registered braided slings and two strand-laid slings used in a wrecking operation

Electrode for Building Up Rails

35 The American Manganese Steel division of the American Brake Shoe Company, Chicago Heights, Ill., has developed a special electrode, known as the Amsco Railface electrode, for use in building up the worn or battered ends of high-carbon rails. This electrode can be used with alternating current, straight polarity or direct current, as desired, and its use is said to result in a weld which is homogeneous with the rail and which is free from porosity or cracks. The deposits from this electrode are said to have high impact and wear-resisting qualities which will assure a long period of satisfactory service. The electrode is available in 3/16 and ¼ in. sizes and in lengths of 14 and 18 in.

In preparing a rail head for building up with the Railface electrode, the spalled and battered material in the joint area is ground off, after which an area of the head extending to a point two or three inches beyond the limit of the proposed weld is pre-heated to 700 deg. F. to eliminate stresses which might otherwise develop from the welding. The Railface electrode is then brought into use, using 175 to 200 amp. for 3/16-in. electrode, or 225 to 275 amp. for a ¼-in. electrode. The procedure for making the weld, as recommended by the manufacturer, follows.

Starting at a point near the rail end on the outside of the head, the welder proceeds across the rail end. He then carries the weld along the gage side for the desired distance, after which he returns it diagonally across the rail to the starting point. Finally he fills in the area thus enclosed and craters the weld in the center of this area. Post-heating the weld to about 1100 deg. F. immediately after welding is recommended, the greater portion of the heat being directed away from the rail end. The heated area should extend about three inches beyond the weld. It is further recommended that, after post-heating, the rail end be protected with a covering of flaked asbestos, the purpose being to retain as much heat in the rail as possible until grinding operations can be started, thereby avoiding the development of grinding checks.

When the asbestos is removed, the welded section may then be ground to conform with the balance of the rail section. When the above procedure is followed, welds produced with the Railface electrode are reported to have a Brinell hardness of about 235, and it is said that, after work hardening, the figure increases to approximately 385.

Building up a battered rail and using the Amsco Railface electrode

De-Icing Lubricants

36 The Chipman Chemical Company, Chicago, is now offering for experimental use a class of products which are not only claimed to be efficient as lubricants and in resisting corrosion, but which are also said to have the quality of preventing the adherence of ice to metal and other surfaces. It is said that any ice that forms on surfaces coated with these materials can be easily brushed off or shaken off by vibration. Known as Kilfrost products, these lubricants were first formulated in England, and at the present time are available in this

A switch treated with Kilfrost, after the storm. The rods have been cleaned off

country in limited quantities for experimental purposes.

Four of the Kilfrost products, all said to be anti-corrosive and non-toxic, are particularly adaptable for use in the railroad field. These are a points lubricant; a de-icing grease known as Grease "A"; a spraying de-icent; and a product known as Kilfrost Railway Solution S.A., which is said to prevent ice formations from adhering to the third rail on electrified lines.

The first of these products, the points lubricant, is applicable for lubricating and de-icing switch points and other moving parts around switches. It is a heavy, black, viscous oil which can be applied by a brush, or by an oil can. De-icing is said to be possible at all temperatures if the product is properly applied. It is claimed, furthermore, that the durability of this lubricant is greater than that of black oil.

The de-icing Grease "A" is designed, primarily, for application to gears and other moving parts where water is present. It can be used on the moving parts of mechanical cinder-handling plants and on plunger rods for automatic car retarders. It is a dark-brown grease which thickens on exposure to the air, and can be applied by brush, grease gun or hand. De-icing can be accomplished, it is said, at a temperature as low as 40 deg. below zero.

The spraying de-icent can be used on the undersides of rolling stock and other locations where it is desirable to prevent corrosion as well as the formation of ice, such as rails in turnouts. It is a brown, oily substance, with a viscosity equivalent to heavy lubricating oil. It drys on exposure to air, leaving a tough resilient greasy film.

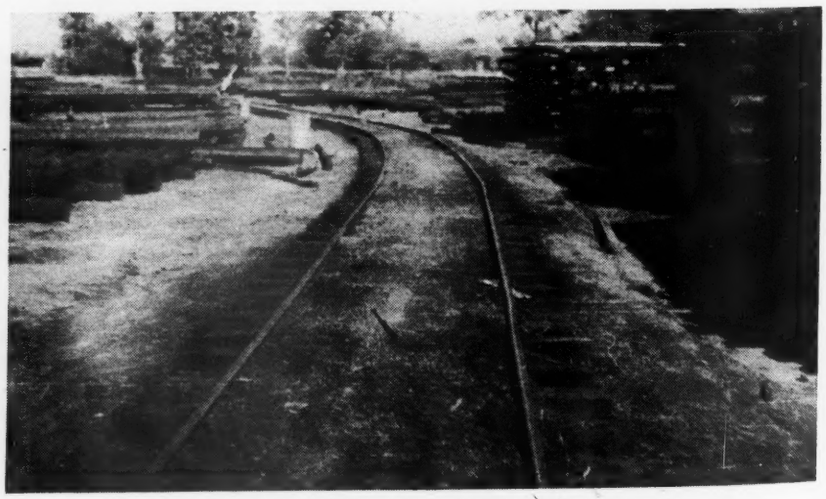
Kilfrost Railway Solution S.A. is said to work most efficiently as an ice preventive, and should therefore be applied before there is a possibility of icing. One application will form a film on third rails that, under ordinary conditions, is said to prevent ice from adhering to the rails so that they can be kept clear by the passage of the shoes. However, when conditions are severe further applications are necessary, depending on the amount of ice to be dealt with and the changes in temperature which occur. Also, reapplications are necessary for each period of ice-forming weather.

Weed Killer

37 The Chapman Chemical Company, Chicago, is now offering a weed killing material, called Penta Weed Killer, which, this company claims, is effective on all types of vegetation, including grasses; will not sterilize the soil; can be diluted with either water or oil; and does not bring about a particular fire hazard.

Penta Weed Killer is a general contact herbicide concentrate combining solutions of chlorinated phenols with highly aromatic petroleum oils. The addition of the chlorinated phenols, it is said, has been shown by laboratory tests to be very effective in increasing the natural weed-killing properties of such oils. To bring about low application costs and reduce fire hazards the concentrate has been designed for dilution with water by the addition of an emulsifying agent. The emulsion formed when water is used is said to be relatively stable, requiring only a slight amount of agitation to maintain stability. It is not considered poisonous to grazing cattle. The concentrate can, of course, be diluted with oil when conditions make it desirable.

When undesirable vegetation is sprayed with the water solution, the weaker plants, it is claimed, will generally be killed outright, including the roots. Strong-rooted perennials will not be killed by one spraying and will eventually grow back. If it is desired to kill the roots of such weeds, several sprayings may be required the first year.



A track that has been sprayed with Penta Weed Killer

Adjustable-Speed Induction Motors

38 A new line of Tri-Clad brush-shifting, adjustable-speed induction motors, known as Type ACA, has been announced by the General Electric Company, Schenectady, N. Y. Available in ratings from 3 to 50 hp. (220, 440 and 550 volts), the new motor features stepless speed adjustment by turning a dial. The entire unit, with the exception of the starter control, is self contained in a housing said to be only a little larger than that for a constant-speed motor of comparable rating.

Remote speed control up to 10 ft. away from the motor can be accomplished by use of a flexible cable shaft. For complete remote control, a small pilot motor can be used to drive the speed-control mechanism.

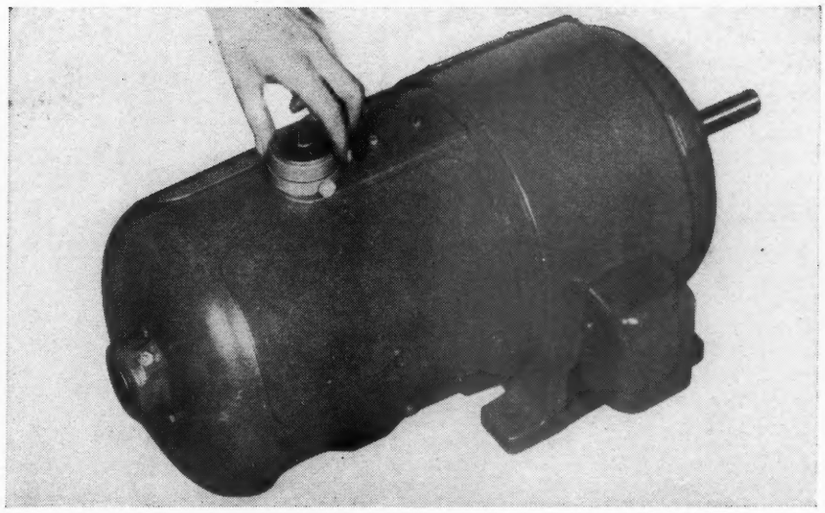
Uniform cooling with low intake

velocity is provided by double-end ventilation. Necessary over-load protection and limit switches are built into the motor. The standard frames have NEMA mounting dimensions. For resistance to oil and heat ageing, Formex wire stator windings are used. A cast iron bearing enclosure affords protection from moisture, dust and dirt.

The motor is rated on a constant-torque basis, and is said to carry full-load torque at rated current and frequency without exceeding a temperature rise of 40 deg. C. on high speed or 50 deg. on low speed. The power factor is reported to be high when the motor is running at high speed, and at synchronous speed, it is about the same as with a squirrel cage induction motor of similar rating.

For intermittent use, speeds below the minimum rated can be obtained by adding secondary resistance. Plugging is possible by the same means. The motor is reversible for short periods of time by reversing two power leads.

The motor has inspection plates which may be removed for inspection of the brushes and brush-shifting mechanism. The motor can be greased while in operation. All necessary inspections can be performed without removing any operating parts.



General Electric brush-shifting, adjustable-speed motor, with speed control dial

New Lubricants

39 Two special lubricants—American Dripless Oil and Door-Ease—are being introduced into the railway field, including maintenance of way departments, by the American Grease Stick Company, Muskegon, Mich.

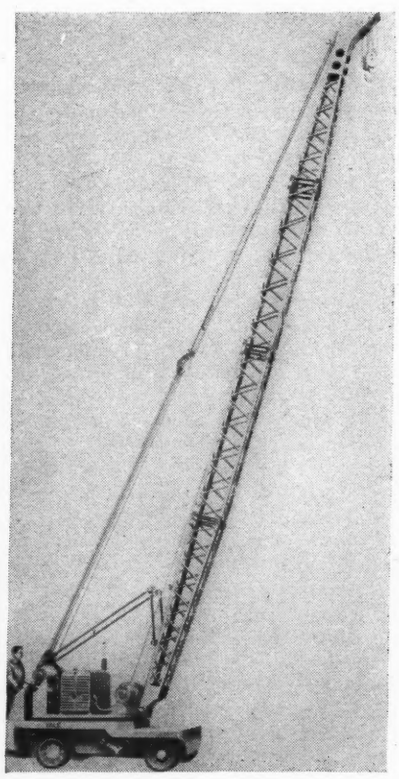
Dripless Oil is composed of a highly-refined, all-mineral base oil with a chemical inhibitor, suspended in a volatile carrier. The oil is said to enter as a rapid penetrant and to be converted into a full-bodied, long-wearing, rust-proofing film which, it is claimed, does not drip or run at 200 deg. F., nor gum or harden at 20 deg. F. below zero. Through high-speed penetration, this oil is said to reach its maximum flow immediately, making it possible to wipe off any surplus while the work is being done. Dripless Oil is available in refillable four-ounce oilers, in quart, gallon and five-gallon cans, and in 15-gal. drums.

It is recommended by the manufacturer for lubricating windshield wipers, wire rope cables of cranes and other lifting devices, signal equipment, door locks and checks, and for loosening rusty bolts and nuts in tracks and elsewhere.

Door-Ease is a blended, solidified, stainless stick lubricant, and is used like a crayon on exposed surfaces to stop squeaks and binding, and to prevent wear. When applied, the lubricant is said to change from a solid to an adhesive, tough-film plastic lubricant, for all weather conditions, which will not stain clothing or upholstery. The stick lubricant, "shop stick" size, comes in a push-bottom metal container 1 in. in diameter and 4½ in. in length.

Crane Truck With 40-Ft. Boom

40 The Yale & Towne Manufacturing Co., Philadelphia Division, Philadelphia, Pa., has announced a new crane truck with a boom that permits a full 40-ft. reach. Although designed especially for use in the construction and maintenance of high buildings, it can be used also in many other out-of-doors lifting operations where a long reach is required. Furthermore, it is said that the machine can be adapted for use on other kinds of work that do not need such a long reach. To accomplish this the 40-ft. boom is constructed in 10-ft. sections, the center sections being removable to form a boom either 20 ft. or 30 ft. long.



The Yale & Towne crane truck with a 40-ft. boom

The capacities of the boom at full length are: 4,500 lb. at a 7-ft. reach; 3,620 lb. at 9 ft.; and 2,000 lb. at 19 ft. At its shortest length the boom has a capacity of 10,000 lb.

The crane truck, which weighs 19,880 lb., has electric elevating and booming limit controls and is equipped with traction and trailer tires which are 22 in. in diameter by 10 in. in width. It has a 270 deg. sluing range and is equipped with outriggers on both sides. To prevent loads from swinging past the pivot point of the boom, the machine is equipped with a lazy-arm boom stop.

Powder-Actuated Fastening Tools

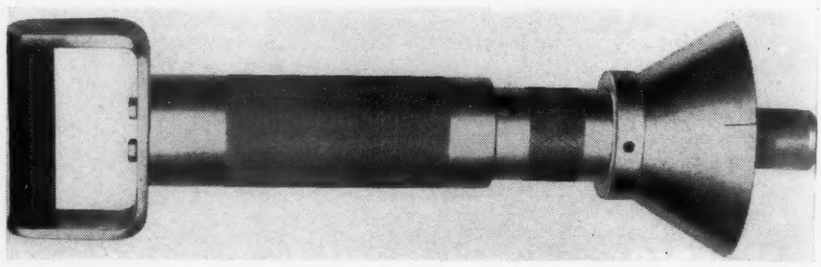
41 The Tempo Products Company, Cleveland, Ohio, is introducing into the railroad field two improved models of its powder-actuated tool which employs the power of an exploding powder charge to drive a "holding stud" into steel, concrete or masonry. One of these models is known as the Tempotool "22", while the other, designed for jobs beyond the capacity of the "22", is known as the Tempotool "38".

Using these tools, sheet steel can be directly fastened by drive pins to other steel or to concrete. Also, threaded studs may be diven into steel or concrete to act as anchors for objects which may be attached to

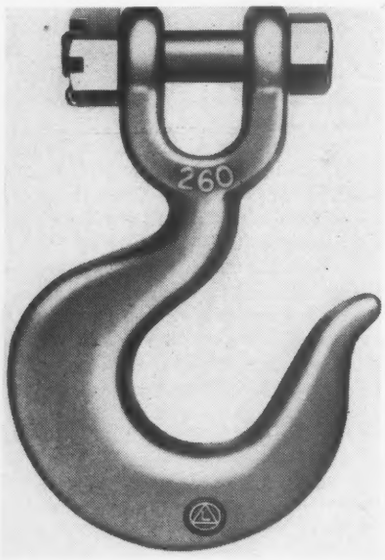
them. It is said that the "22" stud when imbedded by this tool in sound concrete will withstand a direct pull of more than 500 lb., with the holding power in steel being much greater. Time savings achieved by the use of these tools on all kind of fastening jobs are claimed to exceed 50 per cent, since no drilling or hammering is required.

Basically, each of these tools is a cylindrical device containing a rifle-like barrel and a firing mechanism to explode a powder charge which is inserted into a breech plug on the barrel. The drive pin or stud, acting as a projectile, is shot from the barrel by the explosion with sufficient velocity to imbed itself firmly in steel or concrete.

The Tempotool "22" is fired by a sharp rap on its back end. A stud fired by this model is said to penetrate mild steel up to a thickness of ⅛ in. The Tempotool "38" will cause penetration of mild steel up to a thickness of ⅝ in., and is fired by a steady forward push rather than by a sharp rap.



The Tempotool "38"

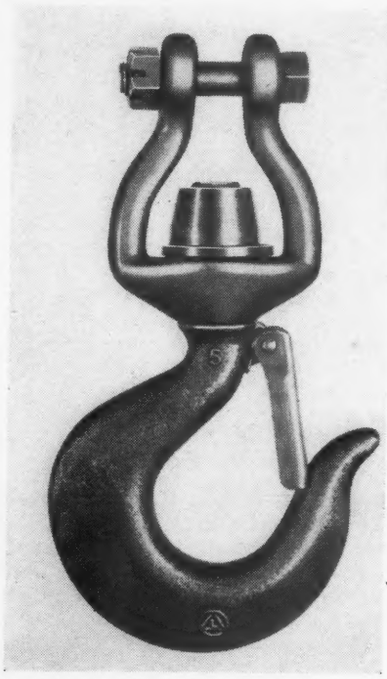


The new clevis hook

Clevis Hook and Swivel Hook Assembly

42 The Thomas Laughlin Company, Portland, Me., has announced two new developments in its line of wire rope and chain fittings—a clevis hook, and a replacement swivel hook assembly embodying an improved safety latch.

In the new design of clevis hook a bolt with slotted nut and cotter pin is utilized to fasten the hook to the wire rope or chain and no welding, machining or threading is necessary. As a result, the speed and ease of attaching or detaching the hook is said to be enhanced considerably with no slighting of safety requirements. Four hook sizes are available, ranging in capacity from 1½ to 5 tons, and all parts, including bolts, are of drop-forged, heat-treated steel.



The new replacement swivel hook assembly with improved safety latch

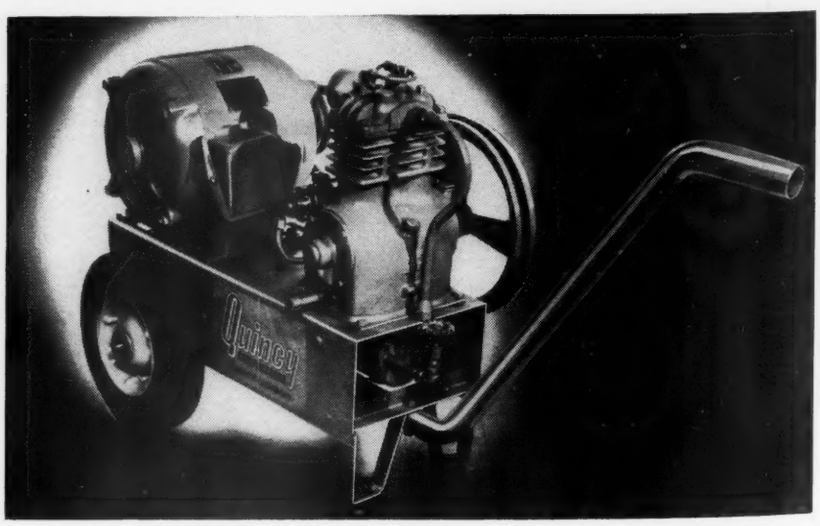
On special order the hook may be supplied with a safety latch or with a reversed jaw.

The new replacement swivel hook assembly, available in one-half ton and one-ton sizes, is recommended for cranes and hoists, or lashing applications where safety is an important consideration. The improved safety latch featured with the new assembly is said to require only 20 per cent of the throat opening of the hook to lock the load safely, and, it is claimed, will not open until released by the operator.

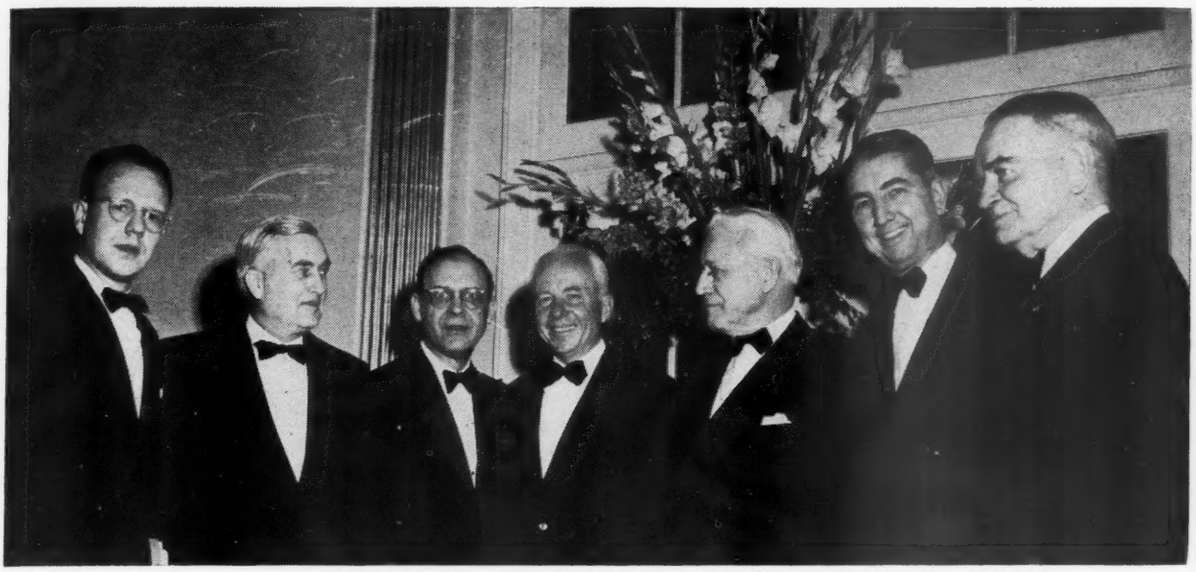
Air Compressors

43 Three new portable units have been added to the line of air compressors manufactured by the Quincy Compressor Company, Quincy, Ill. One of these is the Model DX-2, a self-contained unit mounted on a two-wheel carriage. This unit is V-belt driven by either a ¼-hp. electric motor or a standard ½-hp. gasoline engine.

Another new unit, the Model TX-8 is available in piston displacements from 4.6 cu. ft. to 8.6 cu. ft., furnishing an operating pressure of 70 to 80 lb. This unit also is powered by either an electric motor or a gasoline engine. It is mounted on a structural steel frame with two 10-in. wheels equipped with pneumatic tires.



The Quincy Model TX-8 compressor unit with gasoline engine drive



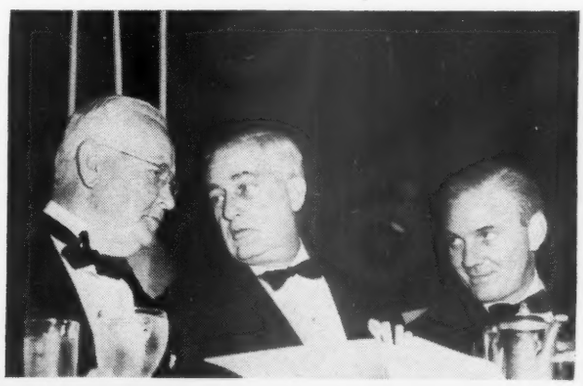
Shown at a reception preceding the New York dinner are, left right, William C. MacMillen, Jr., president of the Federation for Railway Progress; Charles Edison, member of the federation's public advisory committee; Robert J. Bowman, president of the Chesapeake & Ohio; Robert R. Young, federation chairman; A. F. Whitney, president of the Brotherhood of Railroad Trainmen; Attorney General Tom Clark; and William F. Halsey, a member of the federation's public advisory committee

Guests and Hosts at Recent F. R. P. Anniversary Dinner

Harry W. Fraser (left), president of the Order of Railway Conductors, chatting with A. F. Whitney

Donald Ashton (left), executive assistant to the president of the Chicago, Burlington & Quincy, accepting from Mr. MacMillen the permanent plaque awarded by the federation for "outstanding achievement in progressive railroad passenger service"

On the dais, in the usual order, are H. W. Anderson, chairman of the Seaboard Air Line; Charles Edison; and Patrick B. McGinnis, chairman of the Norfolk Southern



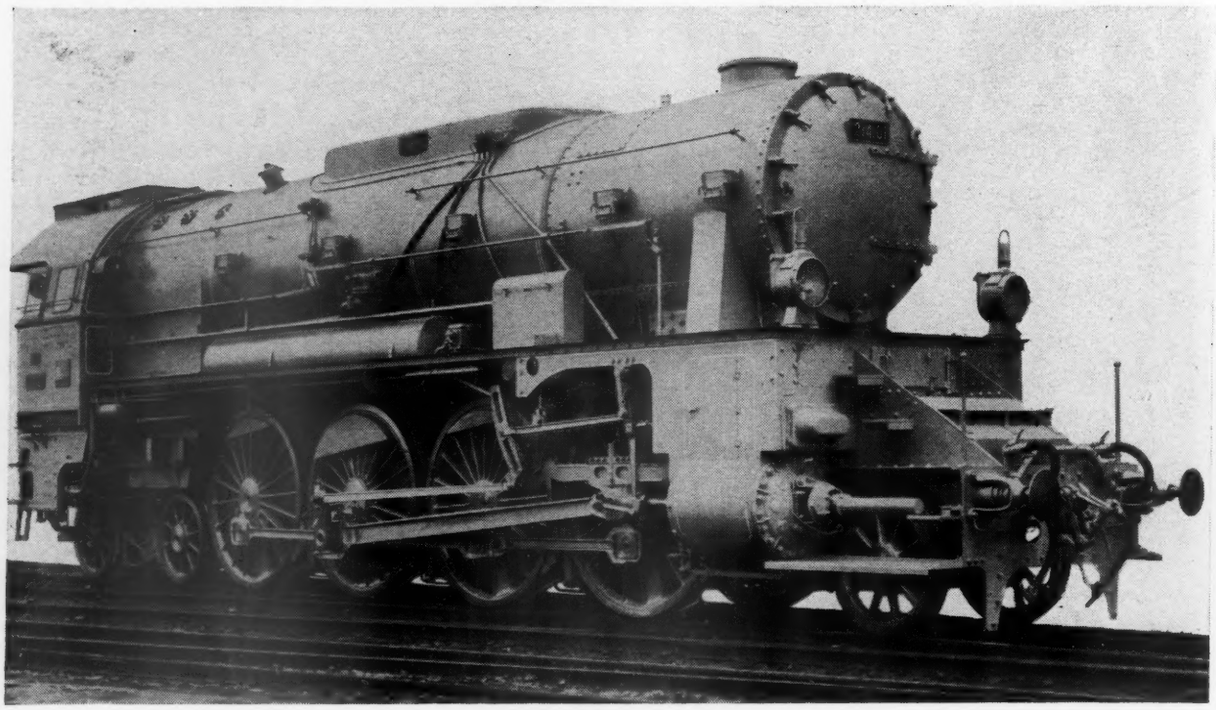


Fig. 1—Austrian 2-8-4 type passenger locomotive as originally built

TENDENCIES IN FRONT-END DESIGN

A study of the problem in terms of energy and velocities of steam and gases flowing through the front end and out stack

By A. GIESL-GIESLINGEN

Fig. 2—Austrian 2-8-4 passenger locomotive after application of the exhaust deflector

Fig. 4—Austrian 2-10-0 type locomotive equipped with the new type of side sheets of 1942

For at least another generation, expenses for steam-locomotive fuel will remain a major factor in railroad operating cost; with a current outlay of more than $500 million a year, the problems of increasing the number of ton-miles per unit of fuel and the hourly ton-mile capacity of the steam locomotive have indeed not lost in importance with the progress of Diesel traction. Both problems are so intimately connected with the performance of the locomotive front end that its improvement should receive more consistent attention.

In this country as well as abroad, the amount of thought and experimental work which has been devoted to this subject is almost alarming in view of the relatively meager and conflicting results obtained. The records of the U. S. Patent Office alone reveal close to a thousand inventions relating to locomotive exhaust and smokebox arrangements. Yet it can be shown that the efficiency of the exhaust as a draft producer was greater sixty years ago than it is today.

The explanation is simple. First of all, a small locomotive of the old days, having its boiler center perhaps seven feet above the rails, with a smokebox diameter of hardly five feet, offered plenty of space for developing a stack of adequate dimensions. Furthermore, the stack exit was so high above the boiler and the cab so close behind it that there was no danger of having the engineman's vision impaired by trailing exhaust. Thus, a large exit area could be provided with minimum loss of energy. Today, however, there is no more vertical space for stack and nozzle than there was sixty years ago, and we find about the same size of stack for a locomotive having perhaps eight times the power and consuming five times as much fuel, the combustion products of which must be forced through this stack with serious loss of energy. Upon anyone who has ever taken a ride next to the smokebox of a large, hard-working locomotive, these considerations will be forcibly impressed.

On the other hand, when the locomotive is speeding at short cutoff, or drifting, the slightest side wind will cause the exhaust steam or smoke emerging from the short stack to be caught in the eddies and partial vacuum created at the leeward side of the boiler, thus trailing down in front of the cab window. With a small-diameter stack, we can help ourselves by using the blower, but only at the expense of increased fuel consumption, and if we manage (with the help of some special design measures) to employ a fairly large and inherently economical stack exit area, trailing will occur even at considerable rates of output.

Obviously, this dilemma cannot be solved by stack design alone—unless we resort to the complication of a stack of variable area which can be reduced when the engine is working light. But it is quite impossible to arrive at a clear evaluation of suitable measures unless we revise our approach to the front-end problem and investigate it in terms of energies and flow velocities involved. In addition, this is the only way of coordinating the investigations of previous observers, and it is the writer's belief that the front end would long have ceased to be a puzzle if primary attention had been paid to the study of energies. Unfortunately, the subject, even if treated occasionally, has frequently been misunderstood; particularly the shock loss occurring when the gases get into contact with the nozzle steam has not received the evaluation which is essential to arriving at workable solutions. The following is a discussion of the basic considerations leading to front-end designs of maximum efficiency on modern high-power locomotives.

No matter whether the draft be produced by a steam jet or a fan, really good efficiency cannot be obtained as long as we rely upon the force of the exhaust to avoid smoke trailing under all operating conditions. Only exhaust deflectors afford a satisfactory solution.

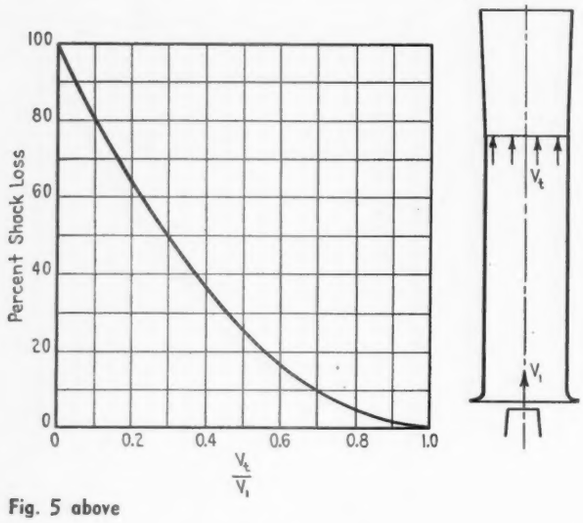


Fig. 5 above

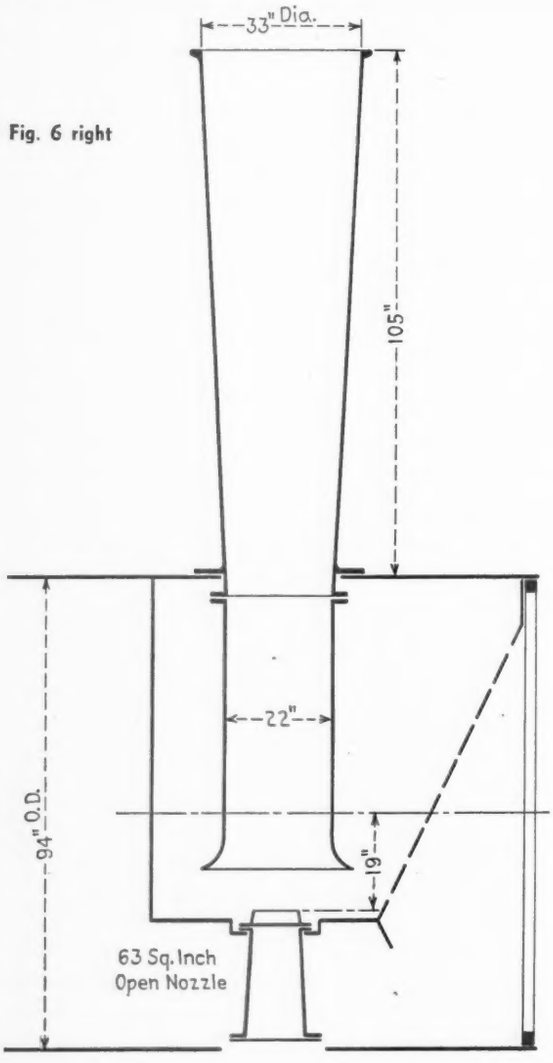


Fig. 6 right

Contrary to widespread belief, the primary object of such deflectors should not be the *lifting* of the exhaust, but rather the prevention of those eddies and partial vacuums at the sides of the boiler ahead of the cab which cause the exhaust to be pulled down. While exhaust lifting would require very large amounts of energy to be imparted to the stream of air which should carry the exhaust upwards, the latter objective can be accomplished with a minimum expenditure of energy. The locomotive shown in Fig. 1 could not be operated safely in winter, because when working at short cutoff and high speed the cab was filled with condensing exhaust steam and vision was completely obscured; but when side sheets were applied as shown in Fig. 2, perfect vision was obtained under all operating and wind conditions. As can readily be seen from the diagrammatical sketch in Fig. 3, these sheets create a stream of air along the sides of the boiler, destroying the partial vacuums otherwise existing. This also explains why the inclined shovel-like front surface still employed on this engine has no essential function and may even be detrimental because, in a long locomotive, the action of the upward stream thus created will not be powerful enough to reach the vicinity of the cab, and the exhaust will be pulled down again in front of the cab window. Therefore, the plain side sheets seen in Fig. 4, developed in 1942, gave complete satisfaction and, at the same time, minimum air resistance.

It is also obvious from the above that aerodynamic streamlining of the locomotive will help keep the cab vision clear and, with large high-speed locomotives from the 4-8-2 type up, such streamlining is essential,

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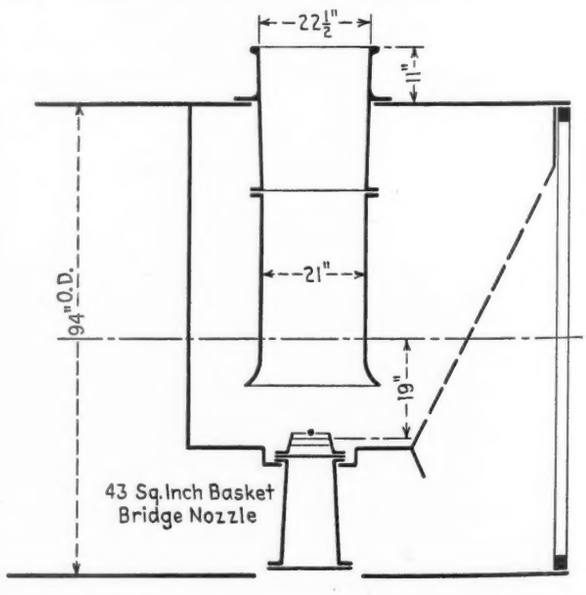
Fig. 5—Shock loss in percentages of kinetic nozzle energy

Fig. 6—Optimum plain stack compared with standard stack for a 6,000 hp. locomotive

Fig. 3—Diagrammatic sketch showing air flow with and without exhaust deflectors

Fig. 7—Proposed oblong stack for a 6,000-hp. locomotive



because increasing length and boiler diameter create less favorable conditions for effective action of exhaust deflectors. In such large locomotives, full advantage must be taken of the available clearance when arranging the side sheets, since it will be necessary to enclose between each sheet and the smokebox a flow area of at least 1,200 to 1,500 sq. in. It is also essential that the side sheets extend beyond the front of the smokebox by not less than 40 per cent of the smokebox diameter, and they should converge ahead of the smokebox as shown in Fig. 3 over that portion of their height where such shaping will not impair the engineman's vision.

An interesting analysis of the effect of exhaust deflectors and streamlining upon trailing conditions was presented by J. F. Griffin, chief engineer, Superheater Company, in his paper "Streamlining Effect on Air Resistance and Smoke Lifting on Steam Locomotives," read before the A.S.M.E. annual meeting last December, which clearly demonstrates the importance of this subject.

In his discussion of John R. Jackson's paper "The Drafting of Steam Locomotives" of 1938*, W. F. Kiesel, Jr., who contributed so much to the improvement of front ends on the Pennsylvania and other railroads, stated that the exit area of the stack should be half the net gas area through tubes and flues. This, indeed, is a favorable figure still rarely found in practice because of difficulties with exhaust trailing without deflectors, and also because of the difficulty of filling a single stack of such size with conventional nozzles within the space limitations of a large locomotive. It should be added that the size of the grate also enters into consideration because of the amount of fuel burned, and large grates will justify still larger stack areas, between 6 and 7 per cent of the grate or 50 to 70 per cent of the gas area. On high-powered locomotives, however, such areas can be realized only with multiple or oblong stacks as described below.

Experience both in this country and abroad has led to the quite general adoption of tapered stacks having a restricted area or throat at some distance above the exhaust nozzle; but with a few exceptions investigators do not refer to the basic reason therefor, namely, the reduction of the shock loss which occurs whenever two media are mixed when traveling at different velocities. When the writer, while still a student, published his first attempt at a calculation of front-end action on an energy basis in 1924, discussed by Prof.

*Transactions of the A.S.M.E., October, 1938.

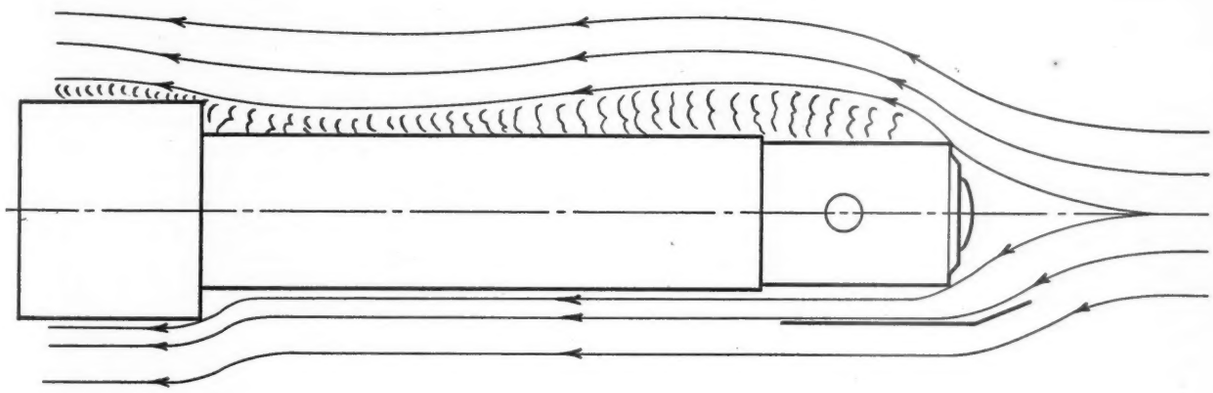
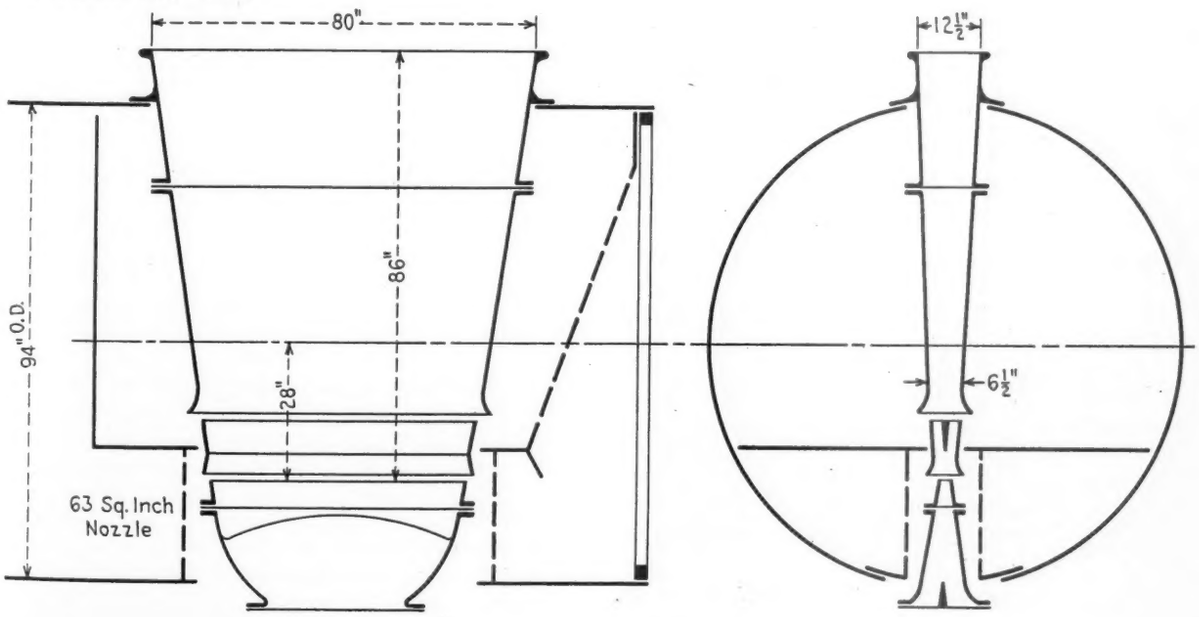
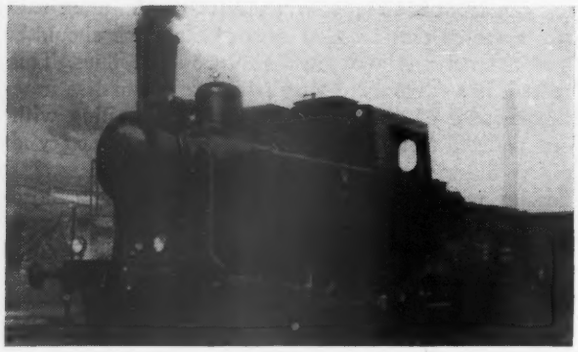


Fig. 3 above—Fig. 7 below





The locomotive on which the principle of the oblong stack was tested

E. G. Young in his "Study of a Front End Model" at the University of Illinois†, a satisfactory method of evaluating the shock loss had not yet been found. This was accomplished in the writer's dissertation of 1929, presented to the University of Vienna, Austria, with the very simple result shown in Fig. 5: The shock loss, expressed in per cent of the initial kinetic energy contained in the nozzle steam, is for all practical purposes, merely a function of the relation of the average velocity of flow within the throat or "mixing chamber" of the stack (v_t) to the initial velocity of the nozzle steam (v_1). In other words, the wider the stack at the throat, the bigger the shock loss and vice versa. Strictly speaking, of course, the calculation is numerically correct only if the cylindrical throat or mixing chamber is long enough to afford complete mixing of gas and steam. In practice, with restricted stack length, an "effective" average stack diameter larger than the throat will have to be inserted into the calculation; but this does not detract from the conclusion that the mixing should, as far as possible, take place within a restricted area. Fig. 5 is the clue to all front end calculations.

In some foreign countries, there is a school of thought maintaining that the stack should not extend down to the vicinity of the nozzle tip, but that the "steam cone" should be free and expose a large surface to the surrounding smokebox gases for effective entrainment. Experience in this country has shown this to be a fallacy, and it can be shown that, with excessively wide and thus inherently inefficient throat areas, the height of the stack inlet above the nozzle may actually be of but little import.

Relation of Throat to Exit

It is clear that front-end design invariably presents the necessity of making a compromise between the desired large exit and small throat areas. Since the permissible taper of the stack is limited lest the stream separate itself from the walls, an optimal single stack of conventional design would require a height of about 9 ft. above the smokebox of a 6,000-hp. steam locomotive. Fig. 6 shows the comparison of such a stack with one of standard practice. Back pressure would drop to about one third, and 600 to 800 hp. would be gained in service, but the scheme is nothing but a nightmare, considering clearances. However, *if* such a stack could be realized, it would be the most efficient solution because of minimum coercion upon the steam and gas flow, resulting in minimum resistance and, consequently, minimum losses in keeping with basic laws of nature. A throat area of 40 to 50 per cent of the exit area will be found highly desirable.

Practical Solutions

The short conventional stack shown in Fig. 6 does not permit of anything near the desired relation between throat and exit diameters; since the distance from the nozzle to the top of the stack is more or less constant and about 70 to 80 in. in a conventional locomotive, the attainable difference between throat and exit diameters—being a function of available height—is also constant, and can be increased only when using artificial means of giving greater divergence to the steam jet. This, in fact, is a practical way to obtain more efficient front ends, particularly within restricted smokebox space due to limited length, feedwater heaters, etc.

If, however, we use four stacks instead of one, for example, the equivalent exit area would lead to half the diameter, and the same absolute difference between throat and exit *diameters* would naturally greatly improve the relation of *areas*: for instance, a single stack of 22 in. exit and 19 in. throat diameter would have a throat area of 75 per cent of the exit area, while four stacks of equal area would each measure 11 in. at the top and 8 in. at the throat (with the same taper) and would result in the much more favorable relation of throat to exit area of 53 per cent.

A far superior solution, however, is presented by the oblong stack and a slot-shaped nozzle.

If we arrange a multitude of small-diameter circular stacks in line and close together, we might omit the separating walls and thus obtain an oblong stack, preferably combined with a nozzle in the shape of a narrow slot. Thirty years ago, D. M. Lewis developed such stacks in this country, and H. B. Oatley further improved on the idea by placing the stack longitudinally instead of crosswise to the boiler. If the problem of throat area, seen in the light of reducing the shock loss, had been clear at that time, a new era would undoubtedly have started in front-end design. Without this basic knowledge, however, the oblong stacks were far too wide at the throat for superior efficiency, and what they gained in energy by a large outlet area was offset, or largely offset, by increased shock loss as evidenced by Fig. 5.

Fig. 7 illustrates a scientifically designed oblong stack for a 6,000-hp. locomotive. It is obvious that the natural taper of the steam jet makes it possible satisfactorily to fill an oblong stack having a throat area of 40 to 50 per cent of its outlet area without resorting to artificial spreading, and the large jet surface assures adequate mixing within the narrow portion of the stack, thus cutting down the shock loss to a minimum.

Fig. 8 shows a small locomotive on which the new principles were tested to prove their validity. A series

†Bulletin *No. 256*, Engineering Experiment Station, Univ. of Ill., 1933.

of ten 0-6-0 switchers was then built by the Vienna Locomotive Works before the end of the war. The oblong stacks gave very satisfactory results. The full advantages, however, will be realized in heavy road service. It is also evident that the narrow, deep exhaust column will lift itself better above the train than that emerging from the conventional circular stack.

Parallel Progress and Achievement

(*Continued from page* 61)

tenance of way engineers," and decided to call it the American Railway Engineering and Maintenance of Way Association. Next, those present agreed on the appointment of a committee to prepare a constitution and by-laws. Written in longhand, the minutes of this historic meeting at Chicago are still preserved in the office of Walter S. Lacher, present secretary of the A.R.E.A.

The next meeting was held at Buffalo, N. Y., on March 30, 1899, at which time the principal business transacted was the consideration and adoption of a constitution. As stated in this document the object of the association was to be "the advancement of knowledge pertaining to the scientific and economical location, construction, operation and maintenance of American railways." Except for a single minor change the object of the association is still stated in the same words in the present constitution of the A.R.E.A.

The first annual meeting of the new association was held at Steinway Hall, Chicago, March 14-15, 1900. Since then it has held an annual convention in every year except 1943 and 1945, when wartime conditions required that the meetings be cancelled.

Growth Rapid from Start

From the nucleus of 17 men who attended the preliminary meeting of the engineers' group in 1898, the membership grew rapidly, totaling 360 in 1901, 528 in 1906, 650 in 1908, and 784 in 1909. Growing with the membership, the increasing prestige of the association was reflected in the number of pages that were devoted to its annual conventions by the technical press. For instance, while the proceedings of the 1901 meetings were covered in 8 pages by the *Railroad Gazette,* the 1909 meeting required nearly 69 pages in the *Railway Age Gazette.* In the following year this publication (now *Railway Age*) started publishdaily editions during these meetings.

The expanding membership and prestige of the association did not go unnoticed by the Road and Track Supply Association. In fact, an editorial in the March 15, 1910, issue of the *Railway Age Gazette* pointed out that "since the first annual meeting of the American Railway Engineering and Maintenance of Way Association in 1900, the Road and Track Supply Association has given most of its time and attention to the latter organization of railway men."

The meetings of the engineer's group were then being held at the Auditorium Hotel in Chicago, and the exhibits were being staged on the mezzanine level of the same hotel. When the number of exhibitors reached 125 in 1908, seriously overcrowding the available space, it became evident that the manufacturers had a problem on their hands that could only be solved by finding large quarters for the exhibit. Consequently, at a special meeting held on September 10, 1908, it was decided to engage the Coliseum at Chicago for the exhibit of 1909. This was a momentous decision for there appeared to be considerable doubt regarding the attendance that could be expected at an exhibition located some distance from the convention hotel.

These doubts were quickly dissipated during the first exhibit at the Coliseum in 1909.

Men Behind the Exhibit

It is interesting to recall the officers of the Road and Track Supply Association who were responsible for the first exhibit at the Coliseum. These were: President, George Stanton (Cleveland Frog & Crossing Co.); vice-president, William Schleiter (Dilworth, Porter & Co.); and secretary and treasurer, John N. Reynolds (*Railway Age Gazette*). The Executive committee consisted of John McKinnon (Kalamazoo Railway Supply Company), R. E. Belknap (Pennsylvania Steel Company), T. W. Snow (Otto Gas Engine Works), J. H. Martin, William Goldie, Sr., and Theodore Huss.

All these men, and others, including Fred A. Poor, had been active in directing the affairs of the manufacturers' group for years.

The pattern of cooperative action that was established at the 1909 convention—with the engineers' group holding its meeting at a Chicago hotel and the manufacturers staging an exhibition in a large building within convenient distance—has continued to the present. Both associations, however, have undergone certain changes in the meantime and both have continued to expand and perfect their organizations to meet the changing needs of the times.

In 1912, for example, the engineers' group changed its name to the American Railway Engineering Association. Because of the vast amount of work involved in printing the increasing number of committee reports, publishing the Proceedings and the Manual, keeping records and performing other essential work of the association, the organization had found it necessary to establish a permanent office at Chicago in charge of a paid secretary.

Until 1919 the A.R.E.A. was entirely an independent organization. In that year, however, it became affiliated with the American Railway Association (now the Association of American Railroads). Although retaining a large measure of independence the association has functioned, since 1919, as the Construction and Maintenance section of the Engineering division of the A.R.A. and its successor, the A.A.R.

The Road and Track Supply Association likewise found a change of name desirable. At the annual business meeting on March 15, 1910, this group changed its name to the Railway Appliances Association, and in the following year it was incorporated as a non-profit organization in the State of Illinois as the National Railway Appliance Association.

GENERAL NEWS

Argue on St. Louis Entry for Santa Fe

I.C.C. sits two days to hear proposed report attacked and defended

Two days of oral argument on proposed arrangements whereby the Atchison, Topeka & Santa Fe would obtain a direct line between Kansas City, Mo., and St. Louis and the Chicago, Burlington & Quincy would improve its route between those two points and shorten its Kansas City-Chicago line by 22 miles were concluded before the Interstate Commerce Commission on March 4. The argument was held at the commission's Washington, D. C., offices.

The proceedings, Finance Dockets Nos. 15365 and 15368, also involve the application of the Gulf, Mobile & Ohio, for authority to transfer to the Santa Fe and Burlington the control of the Kansas City, St. Louis & Chicago, which it acquired in connection with its acquisition of the Alton. As reported in *Railway Age* of November 22, 1947, page 46, disapproval by the commission of the applications was recommended in a proposed report by C. E. Boles, assistant director of the commission's Bureau of Finance, and Examiner A. G. Nye.

Applicants' Views—R. S. Outlaw, general solicitor of the Santa Fe, and principal attorney for the applicants, told the commission that public benefits were "belittled or ignored" in the proposed report. "Neither the law nor the facts of record support the examiners' position," he said. "The philosophy of the report contemplates preservation of the status quo as preferable to progress because some harm might come to some one. No one today would say that the railroad plant should have been frozen 30 years ago. The war taught us better. Management must look to the future with courage, not fear, and its efforts for public advantage should be fostered."

Attacking the position of the protestants, which include the Missouri Pacific, St. Louis-San Francisco, St. Louis Southwestern, Chicago, Rock Island & Pacific and Texas & Pacific Mr. Outlaw charged that, "historically" speaking, the railroads serving St. Louis have not provided the "top-flight" passenger service between that city and California and intermediate points which the Santa Fe has provided for Chicago and Kansas City. In this connection, he said that "greatly improved" passenger service is in prospect for St. Louis if the Santa Fe is permitted to serve that city.

Asserting that the proposed transactions meets the requirements of section 5(2) of the Interstate Commerce Act and that approval of the applications would enhance the position of St. Louis as a western gateway, Mr. Outlaw said that permission of the Santa Fe to enter St. Louis would result in the handling of 8,890 addditional merchandise cars annually. "Moreover," he continued, "one and one-half days per car will be saved in handling l.c.l. merchandise between St. Louis and Santa Fe territory. Proposed Santa Fe livestock service will expand Santa Fe territory from which shipments may reach St. Louis without feeding in transit and open the St. Louis market for Texas livestock from Santa Fe points."

See Advantage to Shippers—Mr. Outlaw also told the commission that railroad and truck coordination in Santa Fe territory will provide, if the transactions are approved, second morning delivery as far west as Dodge City, Kans., and as far south as Ardmore, Okla. Faster and more dependable handling of grain and grain products will bring quicker "money returns" to shippers and reduce possible deterioration, he said, adding that fruit and vegetable shippers also will be benefited by the elimination of interchange at Kansas City and the resultant faster service.

Charging that evidence favorable to the applicants was disposed of in a "summary fashion" in the proposed report, Mr. Outlaw contended that the reader of the report would have to search "in vain" for discussion of such benefits as increased competition, stimulation of traffic, increased business, employment and real estate values. "The enhanced importance of the St. Louis gateway, stressed by many witnesses, was mentioned in but a few lines," he said.

"Manifestly, the examiners have failed to accord sufficient weight to evidence offered by the applicants."

Defending the Santa Fe estimate, which put its potential revenue gain from diverted traffic at $3,000,000 a year, Mr. Outlaw disputed the proposed report's suggestion that a reasonable estimate of the potential diversion would be halfway between that $3,000,000 and the maximum of $21,000,000 set up in estimates of protestants. "The traffic that will be diverted," Mr. Outlaw insisted, "is not such as will affect the adequacy of protestants' service and from such diversions they are not entitled to protection against competition.

"Monopoly is frowned on by our law, and competition is the essence of our economic life," the Santa Fe officer concluded. "These principles are disregarded by the examiners who say the commission should reject anything that would possibly damage the bankrupt protestants .... They are not entitled to have an umbrella held over them. The public is entitled to the benefits of free competition. . . .Progress resulting from competition is cast aside by the examiners who express the whole illogic of their report when they say any improvements effected by the applicants would be met by the protestants."

Opponents' Fears Challenged—Also representing the applicants, F. G. Dorety, retired vice-president of the Great Northern, said that the elimination of interchange at Kansas City would give St. Louis six-day freight service with the west coast. The Santa Fe, he argued, plains to further expedite its service through the improvement of hump and yard facilities at Kansas City and the installation of centralized traffic control and double track on those segments where such facilities are not presently provided.

With respect to the diversion of traffic and revenue earnings of the various roads affected by the applications, Mr. Dorety described as "absurd" the estimated losses seen incurring to the protestant roads as set out by those carriers and by Messrs, Boles and Nye. The latter found that "considering all factors that have controlled the routing of traffic shown in the protesting railroads' traffic studies, the amount of revenues on the 1940 basis which they would lose from diversion of carload traffic would probably be not less than $10,000,000 nor more than $12,000,000." In addition, they also found that the protestants would lose "considerable revenue" from l.c.l. business and "an indeterminate amount of their passenger train revenues."

Others appearing in support of the applications included Walter McFarland, assistant general counsel of the Burlington; Y. D. Lott, general attorney, G. M. & O.; Carl Giessow, representing the St. Louis Chamber of Commerce; J. V. Frank, assistant city counsel, St. Louis; C. A. Stewart, representing the Live Stock Traffic Association; and E. P. Byars, West Texas Chamber of Commerce.

Improvements in freight and passenger train schedules and the utilization of shorter routes, particularly between

Kansas City and Chicago, were outlined by Mr. McFarland, while Mr. Lott commented that approval of the transactions would relieve the G. M. & O. from (1) certain financial obligations and maintenance-of-way and operating expenses; and (2) providing certain passenger service at an annual loss of $3,800. At the same time, he said, the G. M. & O. would be relieved of making capital expenditures ranging from $753,000 to $1,790,000.

Finds Santa Fe Well Off—Appearing for the protestants, M. G. Roberts, vice-president and general counsel of Frisco, said that the Santa Fe is the most prosperous railroad in the nation today and that it therefore does not need additional revenue it would gain if permitted to enter St. Louis. According to Mr. Roberts, lower rates, shorter routes, better service and public benefits would not result if the applications are approved.

Observing that St. Louis is now served by 18 trunk lines and contending that those carriers now operating between Kansas City and St. Louis have the capacity to handle 100 per cent more traffic, Mr. Roberts declared that public need does not require the additional single-line service between those two cities as proposed by the Santa Fe. The findings of Messrs. Boles and Nye, he insisted, showed that single-line service by the Santa Fe into St. Louis would not result in faster service between that city and the west coast.

Mr. Roberts said that the Santa Fe should be ordered to continue its present practice of interchanging traffic at Kansas City. Approval of the transactions, he went on, not only would divert traffic from roads already operating between those two cities, but also enable the Santa Fe to solicit traffic originating between those points. Another goal of the Santa Fe, he held, is to divert from those carriers now serving St. Louis traffic which is interchanged at that city with Eastern and Southern roads. The Santa Fe, he said, thus would be able to divert from other roads additional long-haul traffic and resultant revenue if permitted to make St. Louis another western gateway for its operations.

A. L. Reed, of Dallas, Tex., retained as counsel by the protestants, argued that approval of the transactions would give the Santa Fe 45 per cent of the mileage and 47 per cent of the gross revenues in Western territory. Contending that the Santa Fe still would be required to interchange large amounts of its traffic at Kansas City and that its operations would be substantially the same as present, he held that movements are expedited rather than delayed through interchange at that city. The inauguration of passenger service between the Pacific coast and St. Louis by the Santa Fe, he added, still would require an interchange at Kansas City.

Other protestants include W. C. Wines, representing the state of Illinois; C. E. Weisell, representing the Brotherhood of Locomotive Engineers and the Brotherhood of Railroad Trainmen; T. E. Wood, representing the Public Service Commission of Arkansas; B. W. LaTourette, representing various truck lines and labor interests; H. J. Conley, representing Ft. Smith, Ark., and Little Rock and Memphis, Tenn., traffic and civic organizations; and L. B. Frisch, who identified himself as a former employee of both the Santa Fe and M. P.

January Net Income Totaled $19,000,000

Net railway operating income for the same month was $41,297,152

Class I railroads had an estimated net income, after interest and rentals, of $19,000,000 in January, as compared with $31,500,000 in the corresponding 1947 month, according to the Bureau of Railway Economics of the Association of American Railroads. The January net railway operating income, before interest and rentals, was $41,297,152, as compared with $58,498,861. In the 12 months ended with January, the rate of return averaged 3.39 per cent, as compared with 2.71 per cent for the 12 months ended with January, 1947.

The January gross amounted to $750,734,787, compared with $685,629,934 in the same 1947 month, an increase of 9.5 per cent. Operating expenses amounted to $615,855,516, compared with $539,120,865, an increase of 14.2 per cent. Thirty-nine Class I roads failed to earn interest and rentals in January, of which 17 were in the Eastern district, three in the Southern region and 19 in the Western district.

Class I roads in the Eastern district had an estimated net income of $1,000,000 in January compared with $11,000,000 in the same month of 1947. Those same roads had a net railway operating income of $11,906,764 in January, compared with $23,344,768 in the same 1947 period.

Gross in the Eastern district in January totaled $341,675,624, an increase of 8.1 per cent over the same 1947 period, while operating expenses totaled $290,932,042, an increase of 14.4 per cent.

Class I roads in the Southern region had an estimated net income of $7,000,000 in January, compared with $6,500,000 in the same period of 1947. Those same roads had a net railway operating income of $10,567,699 in January, compared with $10,073,014 in the same 1947 period.

Gross in the Southern region in January totaled $110,805,471, an increase of 8.4 per cent over the same 1947 period, while operating expenses totaled $87,069,428, an increase of 10 per cent.

Class I roads in the Western district had an estimated net income of $11,000,000 in January, compared with $14,000,000 in the same period of 1947. Those same roads had a net railway operating income of $18,822,689 in January compared with $25,081,079 in the same 1947 period.

Gross in the Western district in January totaled $298,253,692, an increase of 11.6 per cent over the same 1947 period, while operating expenses totaled $237,854,056, an increase of 15.7 per cent.

Class I Railroads—United States

	Month of January 1948	1947
Total operating revenues	$750,734,787	$685,629,934
Total operating expenses	615,855,516	539,120,865
Operating ratio—per cent	82.03	78.63
Taxes	79,004,455	75,131,474
Net Railway oper. income (before charges)	41,297,152	58,498,861
Net income, after charges (est.)	19,000,000	31,500,000

Transport Department Advocated by Johnson

Approval of Capehart measure urged by O.D.T. director

Enactment by Congress of legislation designed to establish a federal Department of Transportation under a secretary of transportation was urged this week by Colonel J. Monroe Johnson, director of the Office of Defense Transportation. Colonel Johnson stated his views with respect to the measure, S.1812, sponsored by Senator Capehart, Republican of Indiana, at hearings being conducted by a subcommittee of the Senate committee on interstate and foreign commerce. Provisions of Senator Capehart's bill and those of a companion measure, H.R.4595, introduced by Representative Stefan, Republican of Nebraska, were outlined in *Railway Age* of December 6, 1947, page 74.

At the same time, the subcommittee, of which Senator Capehart is chairman, was informed by Under Secretary of Commerce W. C. Foster that enactment of such legislation at the present time would be "premature," despite the fact that the need for a rationalization of transportation policy and the reorganization of transportation agencies and responsibilities has "long been recognized." Other government officers scheduled to appear before the subcommittee this week included Rear Admiral W. W. Smith, chairman of the United States Maritime Commission, and Oswald Ryan, acting chairman of the Civil Aeronautics Board.

Opposed by I. C. C. — According to Colonel Johnson, the national transportation policy declared by Congress will

continue to be "little more than a pious expression of a laudable objective" unless the bill is approved. Among other goals, he said, it would meet the "compelling need for intelligent coordination" of the government's transportation agencies.

As for the Interstate Commerce Commission, of which he is a member, Colonel Johnson said that agency would oppose the proposed legislation. He nevertheless stated that the commission should be embraced within the framework of the Department of Transportation and that those activities of the commission which are purely executive in nature should be placed under the secretary of transportation. Those functions of the commission which are quasi-legistive or quasi-judicial in nature, he added, should be preserved in the commission; but they, too, should be "within the framework" of the proposed Department of Transportation.

"To the extent to which its functions would be reserved for independent action, I am of the opinion that the bill would not cause the commission to lose its identity as an arm of Congress," he added. Its charter . . . would continue to be the Interstate Commerce Act and the standards for its decisions would be the same as they are now, and there would be no abatement in the rights of parties in interest to have the decisions reviewed by the courts."

The O.D.T. director also testified that he had "often heard," that the commission was an arm of Congress and not a part of the executive branch of the government. "For some years," he explained, "I have served in the dual capacity of interstate commerce commissioner and director of the O.D.T. In the commission, I am a member of Division 3 and am the commissioner in charge of the Bureau of Service. I have, with the consent of the commission (a creature of the Congress, the legislative branch of the government), operated the Bureau of Service and with the consent of the executive I have operated O.D.T., a part of the executive branch of the government, and have unified their activities. I fail to see any real distinction whatever in the character of their respective activities. Our relationship to the public in each case is substantially the same. Budgets for the individual units are submitted to the Bureau of the Budget."

Air Agency Precedent—Colonel Johnson said that that part of the commission having to do with its quasi-judicial and quasi-legislative functions would remain unimpaired under S.1812. He also stated that there is already precedent for establishing a quasi-legislative body within the executive branch of the government. In this respect, he referred to the manner in which the former Civil

(Continued on page 106)

R. R. Young and Associates Register as Lobbyists

Robert R. Young, chairman of the Federation for Railway Progress, has registered as a lobbyist with the clerk of the House of Representatives and secretary of the Senate. This was announced by F.R.P. in a March 3 statement which said further that like registrations had also been filed by other federation officers—President William C. MacMillen, Jr., Vice President Frank J. Lausche, and Secretary-Treasurer Livingston Goddard—and by Joseph Borkin, F.R.P. economic consultant.

The registrations were pursuant to the Regulation of Lobbying Act which was enacted in 1946 as part of the law providing for the reorganization of Congressional procedures. Mr. Young explained why they were filed in the following statement:

"We are glad to register as frankly acknowledged advocates of progressive railway legislation. We intend to support openly such legislation as the Reed-Mahaffie railroad reorganization bill, which would protect the railroad investor against some of the evils of bankruptcy, and to oppose such laws as the Bulwinkle bill, which would discourage free competitive enterprise in our railroads. It is a citizen's duty to work for constructive legislation and to oppose harmful legislation in any field. If that is lobbying, we are proud of our new calling—lobbyist."

NEAL RELINQUISHES C.P.R. PRESIDENCY

W. M. Neal, chairman and president of the Canadian Pacific, with headquarters at Montreal, Que., has resigned due to serious ill health. George A. Walker, senior vice-president at Montreal who for the past year has been a member of the board and of the executive committee, succeeds Mr. Neal as chairman of the company. W. A. Mather, vice-president of the Prairie region at Winnipeg, Man., has been elected president of the company.

To Present Broadcast as Part of A.R.E.A. Chicago Meeting

How railroad research is helping the farmer will be the subject of a half-hour discussion on radio station WLS at Chicago (890 on the dial) on March 16, at 12 Noon, C.S.T. The broadcast will be presented in connection with the 47th annual meeting of the American Railway Engineering Association to be held at Chicago on March 16-18, inclusive.

Participating in the program will be Clark Hungerford, president of the St. Louis-San Francisco; James H. Aydelott, vice-president in charge of the Operations and Maintenance Department of the Association of American Railroads; and C. H. Mottier, vice-president and chief engineer of the Illinois Central. Albert R. Beatty, assistant vice-president of the A.A.R. will act as moderator.

Hearing on Steel and Pig Iron Allocations for Freight Cars

A public hearing on the proposed voluntary agreement for allocation of steel and pig iron for use in freight car building and repair programs will be conducted March 19 by the Department of Commerce's Office of Industry Cooperation. It will be held in the

G. T. W. OPENS NEW TICKET OFFICE AT CHICAGO—On February 16, the Grand Trunk Western opened a new and completely modern ticket office 103 West Adams Street in Chicago, rplacing its office formerly maintained on Michigan Avenue in that city. The "L" shaped office—covering an area of 2,000 sq. ft.—has been designed to speed travel arrangement for passengers going to points in Indiana, Michigan and Canada.

auditorium of the Commerce Department building, Washington, D. C., opening at 10 a.m.

The O.I.C. announcement noted that the hearing will be the first under the voluntary agreements program authorized by legislation enacted late last year. It added that the proposed agreement for allocation of steel and pig iron "follows the general pattern of the program already in effect under supervision of the Office of Defense Transportation." The 10,000-car monthly goal and materials for "normal repair" of rolling stock remain objectives of the plan.

The public-hearing procedure is required by the law which exempts the agreements from the anti-trust laws, provided they are approved by the attorney general. An O.D.T. announcement of March 8 said that agency will follow similar procedures with respect to any proposed agreements covering the "allocation of transportation equipment and facilities," although it pointed out that no such agreements are under consideration at present. Meanwhile, O.D.T. is "cooperating closely" with the Department of Commerce.

"Easy Does It" Title of New A.A.R. Motion Picture on Proper Switching

Believing that switching shock may be causing more damage to freight than any other preventable cause, the National Freight Loss and Damage Prevention Committee of the Association of American Railroads has produced a two-reel 16 mm. sound motion picture on proper switching.

Included in the film are animated charts, vividly illustrating the relation of damaging impacts to coupling speeds, and rough-handling impacts to warm weather. Typical instances of damage to freight illustrate the effects of overspeed shock. The entire picture and accompanying narration are directed primarily to yard personnel and emphasize the important relation of proper switching to good service and reduced claims.

Copies of the film may be obtained in black-and-white for $250 or in Kodachrome for $350 through the Freight Claim Division, A.A.R., Chicago 5. Delivery late in March in anticipated.

University of Minnesota Offers Rail Transportation Institute

The University of Minnesota, Minneapolis, Minn., will sponsor a Rail Transportation Institute, patterned after three similar institutes already offered by the American University at Washington, D. C., in cooperation with the Association of American Railroads. The course will extend from April 19 to May 1, inclusive, and will be directed by Edmund A. Nightengale, associate professor of economics and transportation. A total of 42 hr. will be devoted to classroom studies embracing background and current problems of railroad operation, traffic, management and regulation. The final three days of the institute will include a field trip to the Northern Pacific shops at Brainerd, Minn., the Great Northern yards and docks at Superior, Wis., and over the Duluth, Missabe & Iron Range to Hibbing, Minn.

Details of the institute, eligibility for which of veterans of World War II has been approved, may be obtained from the director, Center for Continuation Study, University of Minnesota, Minneapolis 14.

Would Make B.-R.I. Non-Operating

Plans to place the Burlington-Rock Island in a non-operating role and to permit the Fort Worth & Denver City (part of the Burlington) and the Chicago, Rock Island & Pacific to operate into Houston, Tex., under their individual identities were announced at Houston recently by Ralph Budd, Burlington president. To make the plan effective, Mr. Budd stated, the B.-R.I. would grant trackage rights into Houston to the two proprietary lines.

The action affecting the B.-R.I. is expected to coincide with the spending of some $3,000,000 for the enlargement and improvement of facilities of the Houston Belt & Terminal, which is owned by the Atchison, Topeka & Santa Fe, the Missouri Pacific, the Rock Island and the F. W. & D. C. The elimination of the B.-R.I. as an operating company, Mr. Budd said, is expected "to end a confusion in the public mind at Houston regarding the Burlington and the Rock Island and also to provide more satisfactory service to the patrons of both 'parent' roads".

Start Delivery of New Passenger Equipment to M. P. and T. & P.

The first of nearly 150 new streamlined passenger cars ordered in 1945 by the Missouri Pacific and the Texas & Pacific are currently being delivered by the Pullman-Standard Car Manufacturing Company and the American Car & Foundry Co. A substantial portion of the new equipment, it is stated, will be assigned to the M. P.-T. & P. "Texas Eagles," new daily passenger trains which are expected to go into service in early autumn on new and improved schedules between St. Louis, Mo., and the southwest. The new trains will replace the present "Sunshine Special," operated jointly by the roads.

Five lounge-grill coaches were delivered recently to the M. P. from the St. Charles (Mo.) plant of A.C.F., which is likewise building dining cars, de luxe coaches, dormitory cars and baggage-express cars for both the M. P. and the T. & P. The railroads are also receiving sleeping cars regularly from the Chicago plant of Pullman-Standard.

In connection with the recent delivery of a sleeping car to the T. & P., W. G. Vollmer, president, announced that the road would install the cars in regular service as rapidly as they are received, "even though this means mixing them at first with conventional equipment." The traveling public, he added, wants "to enjoy the comfort of new passenger equipment as fast as we can get it to them."

Seats in the new de luxe coaches are equipped with an improved type foot rest and cushions which have been scientifically tailored to afford extra comfort, according to the roads. These cars are also equipped with individual seat lights and wide full-view windows. In preparation of the new "Texas Eagles," the M. P. is engaging in an extensive program of revising grades and alinement on its Missouri division, where the route between St. Louis and the southwest crosses the Ozark mountains.

Charles L. Heater Receives Steel Founders' Award

At the annual meeting of the Steel Founders' Society of America held in Chicago on February 11 the award for outstanding work in the technical and operating field of the steel castings industry was presented to Charles L. Heater, vice-president in charge of product engineering of the American Steel Foundries. Mr. Heater has been a member of the Technical Research Committee of the Steel Founders' Society since its beginning and for the past two years has served as its chairman.

New Haven Asks to Drop All Old Colony Passenger Service

The New York, New Haven & Hartford has requested state authority to discontinue all passenger service on its Old Colony division on October 1. Howard S. Palmer, president of the New Haven, in a letter dated February 25 and sent to Robert F. Bradford, governor of Massachusetts, requested the authority in view of the fact that losses chargeable to passenger operations on the division exceeded $3,000,000 during the last three months of 1947. The request was made on the basis of a provision in the New Haven reorganization plan which says the road may reduce or drop passenger service on the Old Colony if such operations result in a loss of more than $850,000 for any period of 12 consecutive months after October 1, 1947.

Mr. Palmer's letter pointed out that the proposed elimination of passenger service would not affect freight train operations on the division and that the New Haven would continue to run its special summer passenger service between Cape Cod and Boston, Mass., and New York.

At various town meetings along the Old Colony last week it was voted that

the state take over and operate the division. Other areas which would be affected by the New Haven's proposal voted to support a plan by Gov. Bradford which reportedly called for an extension of the bus service of the Metropolitan (Boston) Transit Authority to replace the Old Colony service. The latter plan would involve the issuance and sale of $10,000,000 of bonds to provide the necessary funds.

Program Distribution System On Burlington Trains

For the entertainment of passengers, both of the Chicago, Burlington & Quincy's new "Twin Cities Zephyrs," operating between Chicago and St. Paul-Minneapolis, are equipped with the Western Electric Company's "full train" program distribution system. Six "California Zephyrs," being built for the Burlington, the Denver & Rio Grande Western and the Western Pacific jointly, are also equipped with the system.

The B. & O.'s "Cincinnatians" Complete First Year of Service

On January 19 the Baltimore & Ohio's Twin streamlined trains, the Cincinnatians," celebrated the completion of their first year of operation. A description of these five-car trains and their operation appeared in the February 22, 1947, issue of the *Railway Age*. These trains operate between Baltimore, Md., Washington, D. C., and Cincinnati, Ohio.

In its first year of service the westbound "Cincinnatian" carried a total of 77,500 passengers, or a daily average of 212 passengers. The eastbound train carried 72,478 passengers or a daily average of 199 passengers. The trains were on time 691 trips out of a total of 730 trips. This is an on-time performance of 94.7 per cent.

Disregard of Signals Caused Collision at Syracuse, Mo.

Failure to operate the following train in accordance with signal indications caused the rear-end collision which occurred January 1 on the Missouri Pacific near Syracuse, Mo., where the first section of that road's train No. 9, the "Missourian," westbound from St. Louis to Kansas City, was struck by a mail-express train operating as the second section. That is the finding of the report on an Interstate Commerce Commission investigation conducted under the supervision of Commissioner Patterson. The accident, which was reported in the *Railway Age* of January 10, page 51, resulted in the death of 12 passengers and 2 Pullman employees, and the injury of 32 passengers, 1 dining-car employee, 1 train porter, and 3 train-service employees.

The fatalities occurred in the passenger train's last car, which the commission's report described as being of "lightweight, high-tensile steel" construction, the other cars of the train being "conventional all-steel" construction. Although it stated that the construction of the lightweight car "apparently" met Association of American Railroads specifications, the report nevertheless said that the damage to that car "directs attention to the capacity of lightweight cars to withstand heavy bung stresses."

Storm Affected Signals—The automatic block-signal system was disrupted at the time of the accident, as a result of a sleet storm, and thus all signals displayed their most restrictive indications. However, the engineer of the following train ran by 24 of them, thinking their indications had been superseded by a message from the dispatcher stating that there were no opposing trains in a specified section of track ahead. Despite the fact that only "opposing trains" were mentioned in the message, this engineer also thought it indicated that the preceding train had arrived at some point beyond the specified territory.

The dispatcher, who also communicated similar advice to the crew of the preceding train, said that, since the lines of communication were rapidly failing over an increasingly larger territory, he had sent the messages "as information only, but expected the crews of these trains to comply with the rules at points where block signals displayed restrictive indications." The report noted that, under M.P. operating rules, "the only provision for taking the automatic block-signal system out of service is by the issuance of a train order specifically stating that the system is out of service." As to the preceding train, the investigation disclosed that it was operated in accordance with signal indications, but flagging rules applicable under the prevailing conditions were not observed by its crew.

The B. & O.'s streamliner "The Cincinnatian," whi.h celebrated its first anniversary on January 19, heads into a curve at Dawson, Md.

News Department continued on next left-hand page

She doesn't wear chrome trim, and her paint is black, but she, too, is truly modern. She was built for a job — a modern job — and she does it well.

With planned scheduling she can stay on the road 16 and 18 hours a day, 27 or 28 days a month. With proper servicing — and such servicing facilities save more than they cost — she can be turned around in an hour or two. With her modern design, based on progressive engineering, her maintenance costs are low. And with equal attention, she — the modern steam locomotive — will give you more train-miles, more ton-miles, more passenger-car miles per year for each dollar of investment than any other type of motive power.

There is a place for steam, and in this place the *modern* steam locomotive is doing an outstanding job. We are continuing to build such locomotives.

LIMA
HAMILTON
CORPORATION

DIVISIONS: *Lima, Ohio* — Lima Locomotive Works Division; Lima Shovel and Crane Division. *Hamilton, Ohio* — Hooven, Owens, Rentschler Co.; Niles Tool Works Co.

PRINCIPAL PRODUCTS: Locomotives; Cranes and shovels; Niles heavy machine tools; Hamilton diesel and steam engines; Hamilton heavy metal stamping presses; Hamilton-Kruse automatic can-making machinery; Special heavy machinery; Heavy iron castings; Weldments.

"The means of protection for the trains involved in this accident," the report said, "consisted of the provisions of the rules requiring that flag protection be provided by First 9, and an automatic block-signal system. Notwithstanding the adverse weather conditions which existed at the time of the accident, and interference with normal operation of the block-signal system which resulted thereform, the accident would not have occurred if the rules had been complied with. Flag protection for First 9 was not provided, and the block-signal indications were not complied with by Second 9."

Scene of Accident—The collision occured 2.25 mi. west of the station at Syracuse (45.05 mi. west of Jefferson City, Mo.) on that part of the M.P.'s Eastern division extending between Jefferson City and Rock Creek Junction, Mo., a single-track line in the vicinity of the point of accident, where trains are operated by timetable and train orders as well as by the automatic block-signal system. The two westbound trains approached from the east over a tangent 2,298 ft. in length, a 3 deg. 3 min. curve to the right 1,111 ft., and a tangent 4,193 ft. to the point of accident and 845 ft. westward. The grade at the point of accident is 0.14 per cent ascending.

The automatic block-signal system is arranged on the absolute-permissive principle, with absolute signals near the ends of sidings and intermediate signals between stations. Signals 1687 and 1703, governing westbound movements, are, respectively, 1.65 mi. and 22 ft. west of the point of accident, signal 1687 being an "absolute" signal. These and other signals on the line are of the color-light type, and are continuously lighted. The system's power set-up includes storage batteries which have sufficient capacity to supply energy during a minimum period of about 18 hrs. if the central-station power supply is cut off. The latter had happened at the time of the accident as a result of breaks in the power-transmission lines; and the control wires had also become broken, thus causing the signals to display their most restrictive indications. The signals remained illuminated by power supplied by the storage batteries.

One Lightweight Car—First was a first-class passenger train consisting of a locomotive and 12 cars in this order: 3 mail cars, 1 baggage car, 1 passenger-baggage car, 2 coaches, 1 diner-lounge car, 4 sleeping cars. As noted above, the rear sleeper was a lightweight-steel car, while the others were of "conventional" all-steel construction. At Tipton, Mo., 5.26 mi. east of Syracuse, the crew of this train received the dispatcher's message which advised that "there is no opposing trains in block between Tipton and M.K.T. Crossing." M.K.T. Crossing is 19.66 mi. west of Syracuse.

The only relief from operating rules which the crew of this train claimed to have received in that message was a waiver of the requirement that their train be preceded by a flagman, as called for by the rule which reads in part as follows: "When a train or engine is stopped by a Stop indication, it must stay until authorized to proceed. Upon information from the train dispatcher. . . that there is no opposing train in the block, it may. . .proceed at low speed, expecting to find a train in the block, broken rail, obstruction or switch not properly set, to the next signal displaying a Proceed indication. . . .If the means of communication fails, or if the train dispatcher. . .does not know that there is no opposing train movement involved, the train or engine may proceed when preceded by a flagman to the next signal displaying a Proceed-at-Low-Speed indication."

The leading train left Tipton at 7:30 a.m., 3 hrs. 45 min. late. Because restrictive indications were displayed by five successive signals east of signal 1703, it stopped at each of them. According to the evidence before the commission, signal 1703 displayed proceed-prepared-to-stop-at-next-signal; and the train was moving at a speed of 15 m.p.h., in accordance with that indication, when the rear end was struck about 7:48 a.m. by Second 9 at a point 22 ft. east of signal 1703. It was daylight, but falling snow reduced visibility.

Ignored 24 Signals—Second 9 was a first-class mail-express train which consisted of a locomotive and 8 cars in this order: 2 box-express cars, 2 express-refrigerator cars, 3 box-express cars, 1 coach. The third and fourth cars were constructed with steel underframes and wooden superstructures, and the remaining six were of all-steel construction. At California, Mo., 17.75 mi. east of Syracuse, the crew of this train received the dispatcher's message which advised that "there is no opposing train in block between Clarksburg (12.5 mi. east of Syracuse) and M.K.T. Crossing."

The train departed from California, at 6:45 a.m., 3 hrs. 23 min. late; and, as the report put it, "without stopping, passed 23 successive signals, of which 9 displayed stop and the remainder displayed stop-then-proceed-at-low-speed, passed signal 1687, which displayed stop-then-proceed-at-low-speed, and while moving at an estimated speed of 40 m.p.h. it struck First 9 at a point 1.65 mi. west of signal 1687." The 40 m.p.h. estimate is that of Second 9's crew; but the report said later that the resultant damage indicated that the speed "apparently was somewhat greater." The average speed between Clarksburg and the point of accident, based on the 44.5 m.p.h. Second 9's speed limit under elapsed time and distance, was put at normal conditions would have been 55 m.p.h.; but the "low speed" called for by signal 1687's indication is defined in M.P. rules as "a speed that will permit stopping short of another train or obstruction, but not exceeding 15 m.p.h."

The force of the impact broke the brake-pipe at the front end of the first car of First 9 and caused separation between the third and fourth cars, between the fifth and sixth cars, and between the eleventh and twelfth cars. The first two separations were caused by broken couplers. The lightweight car on the rear was the only one equipped with tight-lock couplers; and the separation between it and the eleventh car occurred when the rear truck of the latter was torn loose. This eleventh car, remaining coupled to the tenth car, stopped upright on the road bed, with the rear end about 10 ft. north of the center line of the main track, 387 ft. west of the point of collision and 164 ft. west of the front of the twelfth car. The right side of the rear vestibule was damaged.

Rear Car Telescoped — "The twelfth (lightweight) car," as the report put it, "was telescoped at the front end a distance of about 12.5 ft. by the eleventh car and at the rear end a distance of 53 ft. 3 in. by the engine of Second 9. The engine of Second 9 sheared the rear end of the twelfth car from the underframe, sides and roof, and pushed it forward through the car, and tore out partitions and fixtures. The center sills were broken off at the rear-end bolster and were badly broken and twisted throughout practically their entire length All cross members were torn loose from the side sills and pushed ahead of the engine." The engine and tender of Second 9 were derailed; and, when they stopped on the roadbed with the front end of the engine 191 ft. west of the point of collision, the boiler "was covered by the roof and the sides of the rear car of First 9."

The pilot of Second 9's locomotive was broken off and pushed backward from its normal position about 1.5 ft.; and the air-compressor-frame castings and the smokebox were bent. This train's first six cars and the front truck of the seventh car were also derailed, separations occurring at each end of the second to fifth cars, inclusive. The derailed equipment stopped in various positions along the right-of-way, the second car being "demolished." The third and fourth cars were those with wooden superstructures; and they were described as having been "badly damaged," as were the first, fifth, and sixth cars.

Effect on Lightweight Car—The report devoted considerable space to its discussion of First 9's rear car where the fatalities occurred. The car was identified as Pullman "Golden Cloud," one of a lot of 119 sleeping cars of "light-weight, low-alloy, high-tensile steel construction" built during 1941-1942. It was 84 ft. 9 in. long between the pulling faces of the couplers, contained 4 bedrooms, 6 roomettes, and 6 standard sections, and was equipped with a vestibule at one end only. Its light weight was 139,000 lb. At the time of the accident, the non-vestibule end was at the rear of the train.

"It is apparent," the report said later on, "that, when the collision occurred,

News Department continued on next left-hand page

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the deflecting-type pilot of the engine of Second 9, because of its rounded contour and retracted coupler with coverplate, forced the rear coupler of First 9 to the left and the buffer plate to the right. This action split the draft sills and broke the entire draft and buffer assembly free from the rear body bolster. The front end of the engine sheared away all partitions, the rear body bolster, and cross framing, and pushed this debris ahead. The center sills buckled badly. The draft and buffer assembly on the front end apparently was forced downward under the rear coupler and draft assembly of the eleventh car. Damage to the eleventh car was comparatively light. Most of it resulted after the rear truck was torn loose, and the car dropped to the track after the rear two cars separated just prior to stopping."

Then came the suggestion that the damage to the rear car directed attention 'to the capacity of lightweight cars to withstand heavy buffing stresses." The report proceeded to set out A.A.R. specifications for cars used in trains of more than 600,000 lb. light weight. And it noted that these specifications had been met on test by one of the cars of the lot of 119 from which "Golden Cloud" had come. The car which was tested "withstood a squeeze-test load of 800,000 lb. without permanent deformation and with only ½ in. deflection at the center," the report said. It added that "apparently, the construction of the 'Golden Cloud' met the specifications of the A.A.R."

Flagging Criticized—Meanwhile, the report had commented on what the commission's investigation disclosed with respect to the operation of the trains involved. There it was pointed out that the broken control wires had set up conditions which caused all absolute signals to display stop and all intermediate and approach signals to display stop - then - proceed - at-low-speed throughout a distance of 25.28 mi. immediately east of the point of accident. The applicable operating rules were then summarized, and the report went on to indicate that the crew of First 9 had conformed to all of them except the rear-flagging requirements. In the latter connection it was noted that, because the rear end of the last car was not equipped with a vestibule, this train's rear flagman was in the eleventh car; and his flagging equipment was in the vestibule at the front end of the rear car.

The flagman, the report continued, understood that he was required by the rules to drop lighted fusees "at proper intervals," and he said that he had left lighted 10-min. fusees at the rear of his train at points where stops were made in compliance with signal indications. He had a supply of 18 fusees when he left St. Louis and, at the time of the accident, all but 4 of this supply had been used. He had expected to renew the supply at Sedalia, Mo., 18.56 mi. west of the point of accident. He said that about 12 min. prior to the time of the accident he last lighted a fusee and placed it on the main track at a point about 2.56 mi. east of the point where the accident occurred. He did not place torpedoes when the train stopped "momentarily," as "the time was insufficient to place them to the rear of his train during such stops."

The crew of Second 9 stated that they saw no burning fusee; and the first the enginemen knew of anything being wrong was when the fireman saw the rear of First 9 "a short distance ahead." He warned the engineer, who immediately closed the throttle, moved the brake valve to emergency position and the independent brake valve to application position, and placed the reverse lever in position for backward movement. "However," the report continued, "the collision occurred before the action of the brakes became effective and before the engineer saw the preceding train." Tests after the accident indicated that all the braking equipment "functioned properly."

Meanwhile, as noted above, the engineer of this following train was running in disregard of the signal indications, having been "confused" as to the meaning of the message from the dispatcher. When he got his copy of the message he had asked the conductor for "instructions," and the conductor told the commission's investigators that he had told the engineer "to proceed at low speed." However, the engineer "said that the conductor would not give him definite instructions, but merely replied that the message meant just what it said." The engineer then proceeded to run as though the message had cleared the line for him, superseding the signal indications and advising that First 9 was beyond M.K.T. Crossing.

His fireman had made no previous trip over the territory west of Jefferson City, and "was not sufficiently informed concerning the operating rules to warn the engineer to take action to control the movement of his train," the report explained. It added that "the conductor and flagman depended upon the engineer to proceed in compliance with the rules, and these employees said they thought the signals passed by their train were displaying indications more favorable than their most restrictive indications."

Long Island Seeks Permanent Commuter Fare Increase

The Long Island has requested authority from the New York State Public Service Commission to increase its commutation fares on a permanent basis by an average of 25 per cent, compared with the temporary increase of 20 per cent granted last July. (See the *Railway Age* of July 19, 1947, page 61.) The difference, a spokesman for the road said, would produce additional revenue of $594,000 a year. In addition, the Long Island is seeking increases from the Interstate Commerce Commission in its minimum one-way basic fares from 10 to 15 cents and, with respect to basic one-way fares for distances 15.4-mi. and under, the same increases as those authorized for other roads by the commission. These increases, it was estimated, would produce approximately $426,100 additional revenue each year.

The brief filed with the Public Service Commission points out that despite the increases in passenger fares authorized last July and the increases in freight rates and other charges in the latter part of 1947 the road finished the year with a deficit in net income of $3,996,000. For 1948 it is estimated that even with the increases just requested there will be a deficit in net income of $3,887,000.

Money for Rivers and Harbors

Appropriations totaling $151,831,300 for the rivers and harbors work of the Army's Corps of Engineers are carried in H.R.5524, the War Department civil functions appropriation bill for the fiscal year ending June 30, 1949, which was passed recently by the House. This is a reduction of $41,885,700 below the $193,717,000 proposed by the Bureau of the Budget, but is $35,112,600 more than the $116,718,700 appropriated for the current fiscal year ending next June 30.

During its consideration of the bill, the House rejected an amendment proposed by Representative Rankin, Democrat of Mississippi, to increase the appropriation by $1,500,000 for the purpose of beginning construction of the proposed waterway to connect the Tennessee and Tombigbee rivers. Before reporting the bill, the House's committee on appropriations had struck out the $300,000 included in the budget estimates for work on plans for the Tennessee-Tombigbee project, which the committee said would cost a total of $136,244,200.

The $151,831,200 appropriation carried in the bill as it went from the House to the Senate includes $75,304,300 for new construction and $70,000,000 for maintenance and operation of completed works. In the former connection, the House appropriations committee's report noted that an expected carry-over of $2,210,000 from the current fiscal year will make a total of $77,514,300 available for new work in fiscal 1949.

The bill also carries $500,000 to cover the federal government's share of the cost of altering railroad bridges over navigable streams. This is designed to meet requirements of the so-called bridge act of June, 1940, which provides that the government must pay for altering railroad bridges required to be rebuilt in connection with waterway projects—except such costs as re-

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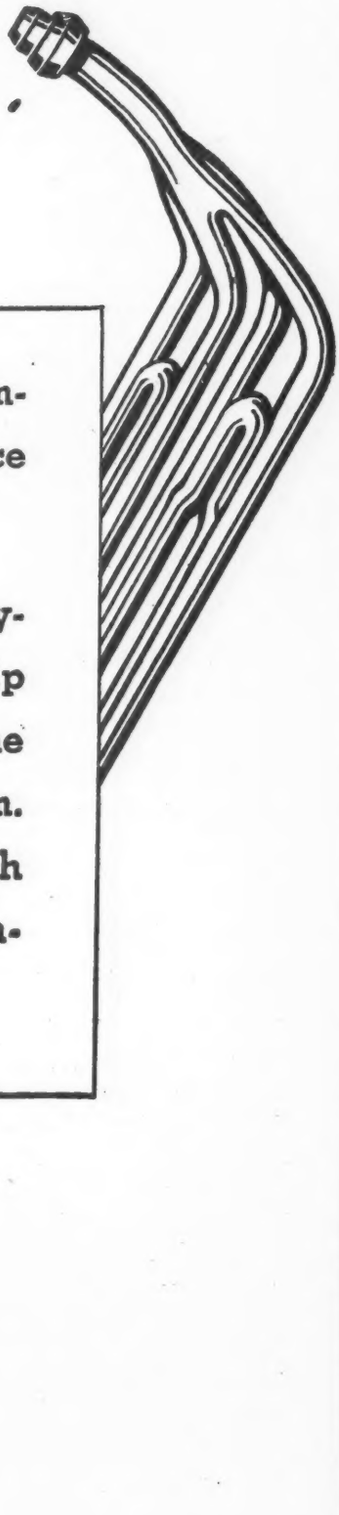

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sult in benefits to the railroads involved.

The House committee's report included a list of projects on which it recommended that the funds allowed for new construction be expended. Largest project on the list was the Umatilla Dam on the Columbia river, $20,027,000. Other items included: Mississippi river between Ohio and Missouri rivers, $8,535,000; Missouri river at Fort Peck, Mont., $3,710,000; St. Mary's river, $3,289,000; Missouri river, Kansas City, Mo., to Sioux City, Iowa, $2,602,000; Intracoastal Waterway, Apalachee Bay, Fla., to Mexican border section, $2,383,000.

The bill also carries funds for operations of the Panama Canal, and in that connection the House committee recommended that the President increase toll charges on commercial traffic using the canal to $1 per ton for laden ships, the maximum permitted by present law. The rate is now 90 cents per ton for laden vessels. The committee further suggested that "proper legislative committees of the Congress should give early consideration to the question as to whether present maximum charges are sufficient to meet present-day conditions." It had previously stated that operating costs of the canal have "materially increased," and that the commercial water carriers have increased their charges to the public.

Money for Air Transport

The appropriation bill carrying fiscal 1949 funds for the Department of Commerce, which was passed by the House and sent to the Senate on March 5, provides $100,370,000 for the Civil Aeronautics Administration. This is a decrease of $55,200,000 under the $155,570,000 recommended in President Truman's budget, and $18,944,334 less than C.A.A. has received during the current fiscal year ending next June 30.

The proposed fiscal 1949 appropriation would provide $82,451,000 for C.A.A. "salaries and expenses," an item which includes the cost of operating the so-called federal airway system. There is also an appropriation of $10,099,000 (and authorization to enter contracts involving another $12,000,000) for the establishment of additional air-navigation facilities.

The appropriation for the federal-aid airport program is $3,000,000, as compared with the current fiscal year's $32,500,000; but here again there is contract authorization permitting committments for another $34,392,000. The latter was $37,000,000 as the bill came from the House's committee on appropriations; but Representative Wilson, Democrat of Texas, persuaded the House to adopt an amendment inserting the $34,392,000 figure and stipulating that no part of the airport-program funds could be spent on the development of the so-called Fort Worth International Airport. Other items in the appropriation are $1,800,000 for "technical development," and $1,185,000 and $1,835,000, respectively, for operation of and new construction work at the Washington, D. C., National Airport.

Pyrene Company Recalls Half-Million Extinguishers

The Pyrene Manufacturing Company called in more than half a million of its hand fire extinguishers on March 8. The company explained that an elusive and persistent corrosive in the extinquisher fluid, supplied to Pyrene by an outside manufacturer, has severly damaged some of the recalled extinguishers and would probably affect others in time. The action is being taken in the interest of fire protection.

All extinguishers recalled are of the vaporizing-liquid pump type. They are quart and 1½-quart sizes with the exception of a small number of pint size. George H. Boucher, Pyrene vice president, promised owners of recalled extinguishers that they would be replaced as soon as possible, but pleaded for patience as the company could not make all replacements at once. He said the recalled extinguishers were mostly in industry and commerce and that probably only from 15,000 to 25,000 were in private homes. They are scattered throughout the country, their location being unknown.

The extinguishers Pyrene is trying to retrieve carry Underwriters' Laboratories' number on their metal labels included in the following groups:

1½-Quart Extinguishers

150781 to 150900	419931 to 449230	505631 to 509630
235486 to 235530	449631 to 458930	510256 to 518255
236731 to 237230	460931 to 461230	520356 to 520955
403106 to 404730	461331 to 478330	532356 to 533748
411998 to 414430	480481 to 494480	539856 to 544312
416631 to 419830	497631 to 504630	

One-Quart Extinguishers

R689558 to R689997	T601801 to T676150	T861051 to T906880
R692644 to R693497	T676251 to T680483	T911051 to T976216
R731288 to R732363	T680651 to T711650	T977051 to T999999
R751698 to R753697	T712151 to T792150	U2 to U27050
T334485 to T380550	T793151 to T843750	U33051 to U33990
T398671 to T485550	T844550 to T845050	U37651 to U38784
T583051 to T585050	T846551 to T853350	U64651 to U79650
T585551 to T601200	T854051 to T854700	U80151 to U100150
		U150151 to U152552

There are some exceptions, however. Some extinguishers listed above were rebuilt recently and should not be returned. They are stamped around the outlet nozzle with the symbols A-48, B-48, etc. to L-48, or the letter X.

Mr. Boucher asked owners to examine their extinguishers closely and, if they are in the affected groups and not among the exceptions, to return them to the place of purchase or to the Pyrene Manufacturing Company, Department RX, No. 10 Empire Street, Newark 5, N. J. Since there are no identifying serial numbers on Pyrene one-pint extinguishers, he requested that these be returned to this address for testing and replacement if necessary.

Also, it was stated, all Pyrene fire-extinguisher liquid (refills) purchased from any source prior to January 1, 1948, should be returned for replacement. The refills, however, should be shipped on a separate bill of lading to another Pyrene Manufacturing Company address—560 Belmont ave., Newark 8, N.J. The returned extinguishers, Mr. Boucher said, will be repaired, refilled with proper liquid and sent out again as replacements. A special division will be set up at the plant to handle the returns.

Future of Lincoln Complaint Depends on Georgia-Case Ruling

Department of Justice policy with respect to future proceedings in connection with its anti-trust complaint against the western railroads and Association of American Railroads (the so-called Lincoln, Nebr., case) will be determined by the outcome of Georgia's suit against the eastern and southern roads which is now pending before the United States Supreme Court's special master, Lloyd K. Garrison. Attorney General Tom Clark so advised a House appropriations subcommittee in recent testimony on his department's proposed appropriation for the fiscal year ending June 30, 1949, which is now before Congress.

Stating that there had been "some criticism" of the department for not having tried the Lincoln case, Mr. Clark explained his position in this way: "We have this Georgia case in the Supreme Court. We are *amicus* in that case, but we are not parties to it. . . .We feel that we will get a decision in that case more quickly than in the local court and then through the circuit court to the Supreme Court. However, we have been diligent in that case out at Lincoln. We have it in a position where if it is necessary we can go to trial pretty quickly."

After further comment by Mr. Clark, the subcommittee's chairman, Representative Stefan, Republican of Nebraska, asked: "So this whole situation depends upon the ruling of the Supreme Court in the Georgia case, as to what happens in Lincoln, does it not?" Mr. Clark replied: "Yes. I do not think we would be justified in going to the expense of trying the Lincoln case, as it

News Department continued on next left-hand page

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would be most costly to try that case. There is no use to throw money away when we can wait a few months in the case and get an opinion out of the Supreme Court on the other case."

Meanwhile Mr. Stefan had raised a question as to how the Department of Justice could maintain an anti-trust action against interstate railroads when the Interstate Commerce Commission has "such exclusive jurisdiction" over such carriers. The attorney general replied with a statement of his department's contention that carrier rate bureaus are not under I.C.C. jurisdiction; and he interpreted the Supreme Court's acceptance of jurisdiction in the Georgia case as an indication that the court, too, was of that view.

Mr. Clark went on to refer to the pending Bulwinkle bill to stay the operation of anti-trust laws with respect to carrier rate bureaus and other joint actions approved by the I.C.C. He pointed out to the subcommittee that the Department of Justice has been opposed to such legislation. "We feel," he added, "that there is an area in railroad administration and railroad activity in which the department has jurisdiction and in which the Interstate Commerce Commission has either not exercised jurisdiction or has no jurisdiction, and this (Lincoln) case is in that area."

Meanwhile, the attorney general had reminded Subcommittee Chairman Stefan that the Lincoln case is being tried "right in the chairman's district." Mr. Clark also said he thought that if the department were successful, "the case would be very helpful, particularly helpful to the 'colonies' as sometimes the West and South are called."

More Railroad Men Unemployed, R.R.B. Reports

Claims of railroad employees during December, 1947, for unemployment compensation and benefit payments made during the month for unemployment, although well below the levels of a year ago, exceeded those for any previous month in the current "benefit year," according to the February issue of the Railroad Retirement Board's "Monthly Review." Claims numbered 124,548, or 39 per cent more than in November.

Retirement and survivor benefit payments for December totaled $19,366,000, an increase of $369,000 over the November figure. Retirement-annuity awards during the month numbered 3,477, and survivor awards totaled 12,510. On December 31, 1947, 78,594 monthly survivor benefits were being paid. A total of 66,126 benefit payments, amounting to $2,468,000, were made during the month for sickness and injuries.

Reporting on its activities during the six-month period from July to December, the board stated that over $14,000,000 was paid for unemployment in almost 500,000 claim periods. These figures were, respectively, 34 per cent and 30 per cent below the corresponding period last year. Illness and injury benefits amounting to $10,744,000 were paid to 72,626 railroad employees in the first six months of the new sickness program. In addition, 2,050 women railroad employees received 624,000 in maternity benefits. Retirement-annuity awards during the half-year period totaled 26,901, which represents the largest number in any six-month period since the last half of 1937, it was stated.

Freight Car Loadings

Car loading figures for the week ended March 6 were not available when this issue went to press.

Loading of revenue freight for the week ended February 28 totaled 791,089 cars, and the summary for that week as compiled by the Car Service Division, A. A. R., follows:

Revenue Freight Car Loading
For the Week Ended Saturday, February 28

District	1948	1947	1946
Eastern	156,835	158,765	144,622
Allegheny ...	169,287	175,997	159,592
Pocahontas ..	69,874	67,447	62,115
Southern ...	138,462	141,984	139,032
N. Western .	75,209	97,324	89,645
Cen. West. ..	117,861	136,471	122,033
S. Western .	63,561	72,003	65,358
Tot. W. Dist.	256,631	305,798	277,036
Total All Roads	791,089	849,991	782,397
Commodities:			
Grain & grain prod.	33,114	56,871	54,912
Livestock ...	8,447	13,179	16,674
Coal	191,474	185,080	185,276
Coke	14,842	14,482	12,948
Forest prod.	44,631	53,069	42,588
Ore	15,397	12,852	9,457
Mdse. l.c.l. ..	108,821	124,286	121,642
Misc.	374,363	390,172	338,900
Feb. 28	791,089	849,991	782,397
Feb. 21	805,376	776,689	723,281
Feb. 14	734,262	799,977	707,054
Feb. 7	747,394	767,301	713,240
Jan. 31	727,038	835,051	723,301
Cumulative total, 9 weeks ..	6,901,922	7,197,378	6,533,136

In Canada.—Carloadings for the week ended February 28 totaled 76,422 cars as compared with 68,817 cars for the previous week and 70,306 cars for the corresponding week last year according to the compilation of the Dominion Bureau of Statistics.

	Revenue Cars Loadings	Total Cars Rec'd from Connections
Totals for Canada:		
February 28, 1948..	76,422	38,288
March 1, 1947.....	70,306	37,691
Cumulative total for Canada:		
February 28, 1948..	634,656	311,698
March 1, 1947.....	603,991	323,769

Mileage Abandoned—Correction

A summary of the February "Monthly Comment" of the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission appearing in *Railway Age* of February 21, page 56, contained a typographical error which resulted in an incorrect statement of the total mileage of first main track operated by Class I roads as of December 31, 1946. This sentence should have read, "The total of 226,438 miles as of the end of 1946 represented a drop of 27,813 miles or 10.94 per cent below the December 31, 1916, total of 254,251 miles."

Modernization of Detroit Passenger Station Completed

The Fort Street Union Station, Detroit, Mich., was officially opened to the public on March 8 to mark the completion of a renovation program begun more than two years ago. (See the *Railway Age* of February 2, 1946, page 290). City officials, civic and business leaders and railroad officers participated in ceremonies dedicating the new facilities, completed at a cost exceeding $1,000,000. The terminal, in use during the entire period of reconstruction, serves the Chesapeake & Ohio, the Pennsylvania and the Wabash.

CONSTRUCTION

Virginia & Carolina Southern.—This road has applied to the Interstate Commerce Commission for authority to construct a 2-mile branch line near Lumberton, N. C., to connect with a plant track of the Carolina Power & Light Co., serving a new power plan.

Baltimore & Ohio. — This road has awarded the following contracts at a total estimated cost of $140,000: To Vogt & Conant, Cleveland, Ohio, for the removal of one track superstructure on bridge 4/97 and the construction of bridge 2/95 at Cincinnati, Ohio; to the Minton Construction Company, Cleveland, for construction signal tower J at Willard, Ohio; and to the Steiner Construction Company, Baltimore, Md., for the construction of meat handling facilities in sheds K and L at the Camden station in Baltimore.

Chicago & North Western.—Division 4 of the Interstate Commerce Commission has authorized this road to construct a 17.5-mile line extending northwesterly from a point near Belle Fourche, S. D., into Crook county, Wyo. The applicant plans to finance the construction, estimated to cost $780,000, out of current funds. It expects to complete the project about September 15.

Pennsylvania. — This road has begun work on extensive improvements to its freight yards at Columbus, Ohio and Sandusky, at a cost of $1,300,000. Eight tracks will be lengthened at the road's Bay Junction Yards in Sandusky, thereby increasing its capacity to 10,215 cars, and seven tracks are scheduled to be constructed at the Grogan yard in Columbus. Improvements at these two points, it is stated, will permit the

News Department continued on next left-hand page

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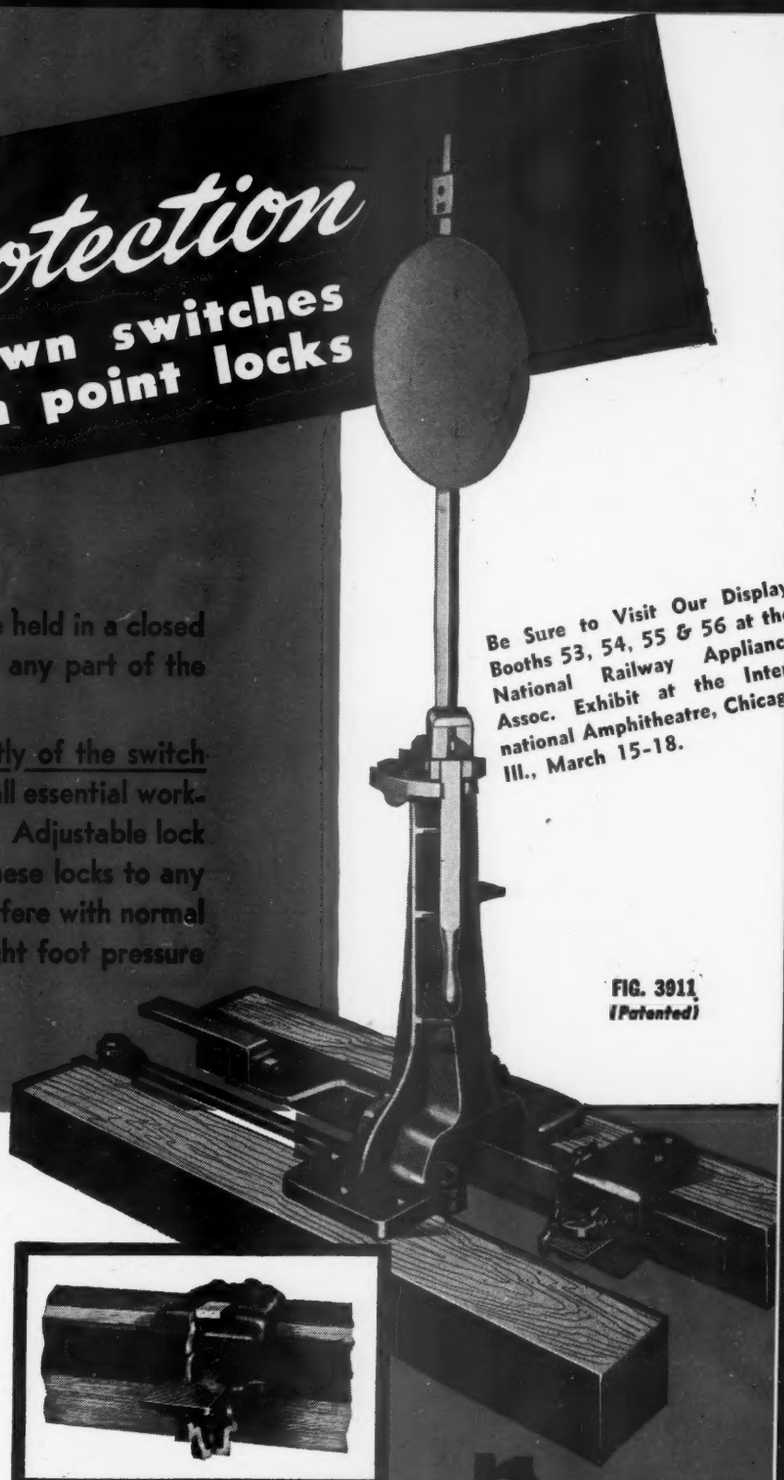

FIG. 3911
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Fig. 3911, for use with all types of column throw stands. Note how lockrod is securely engaged in lock treadle. Hand lever may also be padlocked if desired. Fig. 3912, for use with all types of ground throw switches. On this type of lock, one padlock provides positive locking of both lockrod and hand lever.

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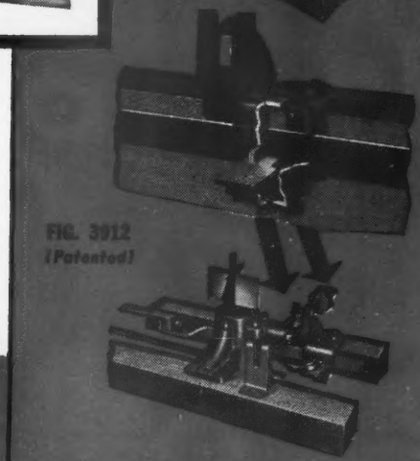

FIG. 3912
(Patented)

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CANADIAN RAMAPO IRON WORKS, LTD., NIAGARA FALLS, ONT.

handling of longer trains and reduce switching, which in turn will further facilitate movement of coal from the mines through Columbus to Sandusky. The return of empty cars will also be expedited, the road states. The work on the improvements—which are under the direction of J. D. Moffat, chief engineer of the Pennsylvania's Western region—is expected to be completed soon after the shipping season opens.

SUPPLY TRADE

Fred P. Biggs has been appointed first vice-president of the brake shoe & casting division of the **American Brake Shoe Company.** In addition to his new duties,

Fred P. Biggs

Mr. Biggs will continue as vice-president in charge of sales of the brake shoe & castings and southern wheel divisions, positions which he has held

Roger W. Batchelder

since 1944. Mr. Biggs has been associated with Brake Shoe since 1916. The company also has announced the appointments of **Roger W. Batchelder,** formerly general purchasing agent, as assistant to the president of the National Bearing division and **William H. Old,** formerly assistant general purchasing agent, as general purchasing agent. Mr. Batchelder, who has been with the company since 1933, will be located at the division headquarters in St. Louis, Mo. Mr. Old joined the company in 1940 and has served in various purchasing capacities. He will continue to be located in New York.

William H. Old

R. C. Brinkman, a member of the direct factory sales department of the Frigidaire division of the **General Motors Corporation,** has been appointed railroad

R. C. Brinkman

sales representative. Mr. Brinkman has been associated with Frigidaire for 19 years and worked in the sales order and foreign departments before being transferred to the direct factory sales department in 1945.

Overfire air jets with mufflers, developed by **Bituminous Coal Research, Inc.** as a result of several years' research, are now being manufactured and sold by the **Franklin Railway Supply Company.** B.C.R. is continuing its research in smoke abatement methods and as refinements in the jets and their controls are made they will be incorporated in the Franklin product.

Frank J. Meyer, chief engineer of the railway products division of the **Philadelphia Steel & Wire Corp.,** has added to his present duties those of sales agent, with headquarters in Chicago, and will be responsible for all sales activities in the Chicago and Twin Cities area.

The **Ansul Chemical Company,** Marinette, Wis., has announced the appointment of **Kenneth B. Covert** as sales manager of its fire extinguisher division. Mr. Covert worked for the Revere Brass & Copper Co., Chicago, and the Macklan-

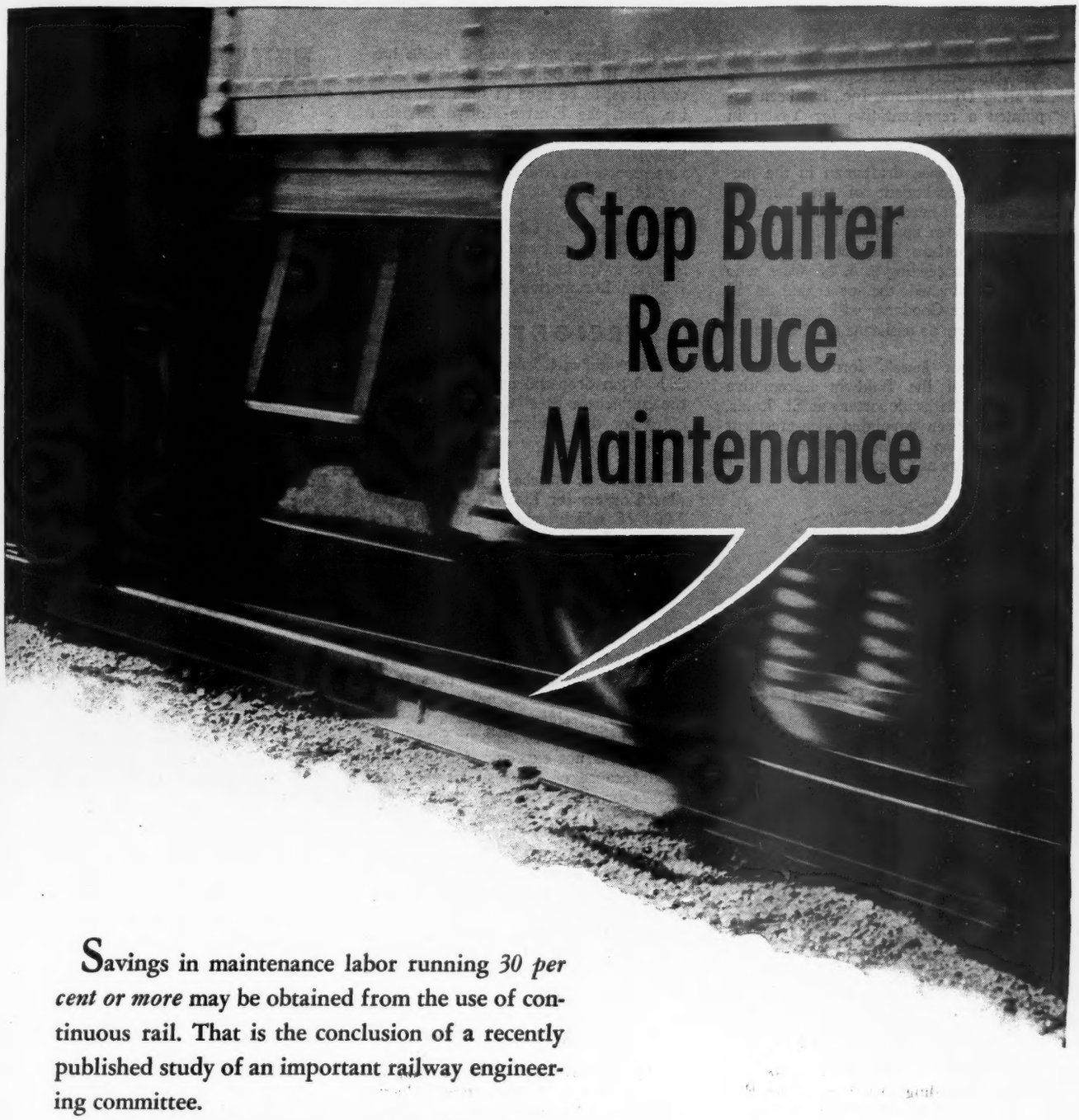
Kenneth B. Covert

burg Supply Company, Oklahoma City, Okla., before joining Ansul in 1945. Before his recent appointment he was in charge of refrigerant sales at the company's eastern office in Philadelphia. Pa.

Walter A. Coogan, director of the International division of Sylvania Electric Products, Inc. for the past 15 years, has resigned to join the **John C. Dolph Company** as executive vice-president and director, it has been announced.

The **Tyson Bearing Corporation,** Massilon, Ohio, has announced the following appointments and assignments in its sales organization: **George C. McMullen,** a member of the firm for 16 years, has been appointed vice-president in charge of sales; **W. H. Oexle,** formerly southeastern district manager of the L. S. Starrett Company, has joined Tyson as general sales manager; **Herschel J. Deal,** vice-president, is in charge of the midwest territory and will make his headquarters in Chicago; **Ivan C. Mann,** formerly manager of replacement sales, is assistant sales manager; **R. R. Flaisig,** formerly field service representative, has been appointed representative in the southern Ohio territory, with headquarters at the factory; **E. M. Smith,** formerly chief inspector at the Massilon plant, has been placed in charge of the northeastern territory, with headquart-

News Department continued on next left-hand page



Savings in maintenance labor running *30 per cent or more* may be obtained from the use of continuous rail. That is the conclusion of a recently published study of an important railway engineering committee.

System, financial, and operating officials interested in how OXWELD pressure-welded continuous rail can reduce maintenance costs should write for booklet A, on "Continuous Rail." Please address The Oxweld Railroad Service Company, 230 N. Michigan Ave., Chicago 1, Ill.

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OXWELD RAILROAD SERVICE

SINCE 1912—THE COMPLETE OXY-ACETYLENE SERVICE FOR AMERICAN RAILROADS

ers in Philadelphia, Pa., and **Carl M. Behm,** formerly sales representative for Bearing Distributors, Inc., has been appointed a representative for Tyson in northern Ohio.

Frank A. Jones, draftsman in the mechanical department of the Missouri Pacific, with headquarters at St. Louis, Mo., has been appointed chief engineer of the **Dearborn Chemical Company,** at Chicago, succeeding **E. A. Goodnow,** who has relinquished the post due to ill health. Mr. Goodnow will remain with the company as assistant chief engineer.

W. Hunter Russell, formerly district manager of the Baldwin Locomotive Works, with headquarters at St. Louis, Mo., has been appointed vice-president of the **Spring Packing Corporation,** with headquarters at Chicago.

EQUIPMENT AND SUPPLIES

Timken Equipment Ordered for Argentine Diesels

The Timken Roller Bearing Company has announced the receipt of an order for 3,120 tapered roller bearings and 1,560 journal boxes to equip 130 85-ton meter-gage Diesel-electric road locomotives being built for the Argentine State Railways by the General Electric Company.

February Freight Car Output Totaled 8,463

Freight cars produced in February for domestic use totaled 8,463, including 2,157 built in company shops, compared with January production of 8,964 cars, which included 2,403 built in company shops, according to the American Railway Car Institute. The decline in freight car production was explained by the institute as the result of severe weather conditions, shutdowns in some plants because of gas shortages and the continuing lack of certain types of steel. Freight cars ordered last month for domestic use, the institute said, amounted to 11,648, including 6,675 ordered from company shops, compared with January orders for 9,213 cars, including 5,586 ordered from company shops. The backlog of freight cars on order and undelivered on March 1 was 121,886, including 39,994 on order from company shops.

LOCOMOTIVES

The **Norfolk Southern** has ordered 3 70-ton 600-hp. Diesel-electric road-switching locomotives from the General Electric Company.

The **Chicago, Rock Island & Pacific** has ordered 10 1,500-hp. Diesel-electric locomotives, to be used in suburban service, from the Electro-Motive Division of General Motors Corporation. The authority to purchase this equipment was reported in *Railway Age* of February 14, page 72.

The **Bessemer & Lake Erie** has ordered two 1,500-hp. and one 1,000-hp. Diesel-electric switching locomotives from the Baldwin Locomotive Works.

FREIGHT CARS

The **Wheeling & Lake Erie** has ordered 500 50-ton drop-end gondola cars from the Bethlehem Steel Company. The inquiry for this equipment was reported in the *Railway Age* of January 24.

The **Duluth, Missabe & Iron Range** has placed orders for 1,500 70-ton ore cars, 1,000 of which will be built by the Pullman-Standard Car Manufacturing Company and 500 by the General American Transportation Corporation.

PASSENGER CARS

The **Erie** is inquiring for 30 70-ft. steel baggage and express cars to be used in through passenger service. R. E. Woodruff, president, estimated the cost of the cars would be about $1,275,000. Delivery is not expected until early in 1950 because of the heavy backlog of orders for railroad passenger equipment.

The **Atchison, Topeka & Santa Fe** has ordered 24 streamlined "day-nite" passenger cars from the Pullman-Standard Car Manufacturing Company. Seating 44 persons, they will have reclining seats and upholstered leg rests which pull down from the seat ahead, thereby giving the passenger a full-length sleeping surface at night.

SIGNALING

The **American Locomotive Company** has ordered 18 sets of intermittent inductive train control equipment from the General Railway Signal Company. Fourteen sets are for installation on Diesel-electric locomotives for passenger service on the Lehigh Valley and four are for Diesel-electrics to be used in switching service by the Carolina & Northwestern.

The **Wabash** has placed an order with the Union Switch & Signal Co. covering the materials for the installation of centralized traffic control between Montpelier, Ohio, and New Haven, Ind., 42.6 mi., with a Style C control machine to be located at Montpelier. The order includes H-5 searchlight signals, office and field coding equipment, Style M-22A dual-control electric switch movements, T-21 switch mechanisms with SL-25 electric locks for main line hand-operated switches, relays, rectifiers, transformers and housings. The field installation will be handled by railroad forces.

RAILWAY OFFICERS

OPERATING

Harold F. Neville has been appointed general superintendent of the Niagara Junction at Niagara Falls, N. Y.

A. G. Britzius has been appointed assistant to general manager, Lines West, of the Chicago, Milwaukee, St. Paul & Pacific at Seattle, Wash., succeeding **Harry E. Arnold,** retired.

A. P. Ford has been appointed supervisor of stations of the Chicago Great Western, with headquarters at Chicago.

L. E. Pangburn, trainmaster on the Cleveland, Cincinnati, Chicago & St. Louis (part of the New York Central system) at Springfield, Ohio, has been appointed assistant to general manager of the New York Central system, with headquarters at Syracuse, N. Y.

OBITUARY

V. L. Miller, general agent of the Duluth, South Shore & Atlantic, with headquarters at Duluth, Minn., died recently.

Walter H. Edmondson, assistant general manager of the Grand Trunk Western, with headquarters at Detroit, Mich., died in St. Mary's hospital in that city on March 5, following a heart attack.

E. E. Dildine, who retired in 1927 as superintendent of telegraph of the Northern Pacific, at St. Paul, Minn., died on February 21, at Seattle, Wash., following a long illness.

Frank H. Westerman, assistant general freight agent of the St. Louis Southwestern, with headquarters at St. Louis, Mo., died on February 29, at St. Luke's Hospital in that city.

Charles W. Mathews, assistant superintendent of machinery of the Louisville & Nashville, with headquarters at Louisville, Ky., died in that city recently.

David E. Beatty, who retired on September 1, 1947, as superintendent of the Montgomery and New Orleans division of the Louisville & Nashville, died at his home in Mobile, Ala., on January 27, following a brief illness.

Dan O'Connell, who retired in 1944 as chief special agent of the Southern Pacific, with headquarters at San Francisco, Cal., died on January 3.

F. S. Hewes, office engineer of the Atchison, Topeka & Santa Fe, with headquarters at Chicago, died at a hospital in that city on March 3, following a short illness.

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Transport Department Advocated by Johnson

(Continued from page 90)

Aeronautics Authority, which was established as an independent agency, was reorganized in 1940. The five-member board created by Civil Aeronautics Act of 1938, he said, was given a new name (Civil Aeronautics Board), was relieved of certain of its functions, and transferred to the Department of Commerce with the reservation that the C.A.B. would exercise its functions of rule-making, adjudication and investigation independently of the secretary of commerce.

Noting that the establishment of a Department of Transportation, or a variation of it, has been frequently advocated for 75 years, Colonel Johnson said that the need for such legislation is long overdue. "One cannot emphasize too strongly the gravity of our transportation situation," he said. "Nothing can impair industrial activity in peacetime, nor more surely defer victory or even cause defeat in war, than insufficient or poorly managed transportation."

Asserting that there would not now be a freight car shortage "had there been a Department of Transportation and the matter brought to the attention of the cabinet where the important affairs of the nation are discussed," Colonel Johnson also declared that the "deficiency" which the O.D.T. was created to supply in World War II was an "indictment of the democratic form of government which remained blind so long to the necessity of the coordination and common direction of this nation's transportation on which it is fundamentally dependent for all its activities." Had a Department of Transportation been created before or since World War I, he went on, there would have been no necessity for the O.D.T.

According to the O.D.T. director, there are 29 departments, boards, bureaus, agencies and government corporations exercising 91 types of control of one form or another over railroads and other types of transportation. In this connection, he introduced an exhibit to show that 18 government agencies exercise authority over rail transportation; 22 over water transportation; 17 over highway transportation; 20 over air transportation and 14 over the pipe lines.

"From my own experience as director of the O.D.T.," he said, "I know that these harassments and conflicts exist in copious quantity, for I have had more difficulty in keeping these various . . . agencies in line . . . than I have had in dealing with the countless difficulties arising from the operation of the various types of transportation. A Department of Transportation would cure these difficulties."

The O.D.T. director also stated that a Department of Transportation would act toward alleviating the contentions of those who argue that the government,

in giving assistance through various methods and in varying degrees to all forms of transportation, has not followed an even-handed and impartial approach. "The defect in our present scheme of governmental participation in the field of transportation is . . . that a number of agencies are contemporaneously applying policies which generally . . . relate only to one segment or a limited portion of the transport industry, and that there is no overall agency or person with authority to coordinate these separate activities to the end that the national interest be best served," he said.

Colonel Johnson also remarked that, if it is felt that additional cabinet officers should not be created, it appears "perfectly feasible" to place the proposed Department of Transportation in the present Department of Commerce and rename that agency the Department of Transportation and Commerce.

The conclusions of the Department of Commerce, according to Mr. Foster, are based largely upon the fact that the so-called Commission on Organization of the Executive Branch is studying the reorganization of the government in general, including the reorganization of transportation agencies. While the pendency of a transportation study by this group should not necessarily preclude a proper committee of Congress from studying and recommending legislative proposals of this character, he said, there is much to be said for deferring final action in order that "such a major proposal for the establishment of a new department of government may be considered in the context of the proposed structure of the entire executive branch."

The Department of Commerce, Mr. Foster declared, is "basically sympathetic" to the essential objectives and general approach of the bill. "Specifically," he said, "we believe that the need for a rationalization of transportation policy is so clear as not to require debate, and we believe that the accomplishment and maintenance of this rationalization in the long run can best be achieved by a greater unification of executive control over those agencies and instrumentalities of the federal government which are primarily concerned with transportation and closely related problems. Moreover, it seems clear that these objectives will require some consolidation of existing agencies under a common head."

Speaking briefly with respect to his bill, Senator Capehart said he introduced it solely for the reason of bringing about a more "proper way" of handling the nation's transportation agencies and facilities. At the same time, he denied reports to the effect that he had been influenced by the Transportation Association of America to introduce the legislation and to expedite hearings on the measure. The bill, he said, was written with the assistance of his immediate staff and without consulting any government agencies or independent transportation organizations.

MATERIAL HANDLING *News*

With this high-lift, low-clearance attachment, a Clark fork truck can take material through a freight car door and tier loads to the car roof, as well as tier loads rafter-high in the warehouse.

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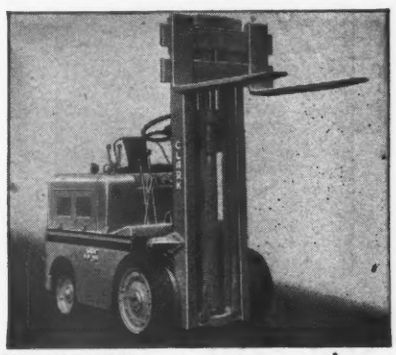
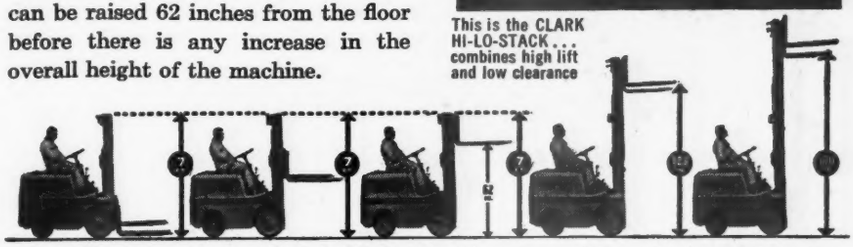


This is the CLARK HI-LO-STACK . . . combines high lift and low clearance



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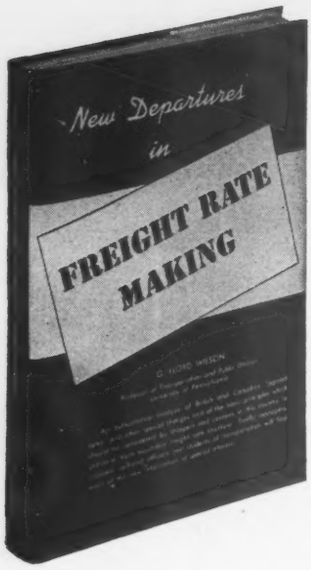

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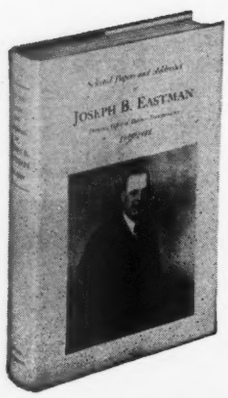

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